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No. 1

GEOGRAPHICAL ASPECTS
OF
INDUSTRIAL GROWTH
IN THE
METROPOLITAN TORONTO REGION

BY
N.C. FIELD AND D.P. KERR

DEPARTMENT OF GEOGRAPHY
UNIVERSITY OF TORONTO

Ontario

REGIONAL DEVELOPMENT BRANCH
DEPARTMENT OF TREASURY AND ECONOMICS

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CHAPTER I

INTRODUCTION

Manufacturing is essentially an urban phenomenon which is distributed through the urban hierarchy. Although metropolitan centres tend to account for a disproportionately larger share than small cities,¹ many medium sized and small cities and towns have a significant share of footloose industries.² Why industry is arranged in this way and is not dispersed evenly according to size of urban place or concentrated entirely in large cities has invited much study.

As one contribution to an understanding of the spatial patterns of industry, this study selects the peripheral zone of the metropolis for investigation. In the area just beyond the suburbs the composition of some, and in most cases rather old, communities is being changed by the development of new industrial concerns. In other cases new towns have been built to house industry. To throw light on the process of industrial growth in what might be called "tomorrow's suburbs" and satellite towns, this study seeks to examine factors influencing the outward spread of manufacturing from the metropolitan centre.

To be more specific, the authors selected the region of Metropolitan Toronto as particularly appropriate for study. Metropolitan Toronto has a large and diversified industrial structure which over the last few decades has been expanding rapidly. The periphery comprises a predominantly rural area within which there are a number of communities. Most of these developed more or less independently of Toronto but are, at present, being drawn increasingly into its orbit. Briefly, the study seeks to:

- (i) describe and analyse in as much detail as possible the growth trends of manufacturing in the metropolitan region (metropolis and periphery) based on published and unpublished statistical data.
- (ii) describe and analyse the spatial linkages between manufacturing activity in towns of the periphery and in Metropolitan Toronto and the extent to which linkages of this sort have promoted, or retarded, industrial growth in the peripheral zone.
- (iii) describe and analyse the role of other factors, such as land costs and tax rates, in the outward dispersal of manufacturing from the metropolitan core.

¹ For example, in the United States in 1962, the eleven largest metropolitan centres comprising 27.3% of the population, accounted for 38.3% of the nation's value added in manufacturing. See Alan Pred, *The Spatial Dynamics of U.S. Urban Industrial Growth 1800-1914*, (Cambridge: M.I.T. Press, 1966), p.12. In Canada in 1961, the distinctions were even greater. Metropolitan Montreal and Toronto made up 21.6% of the population but accounted for 37.7% of the value added in manufacturing. See Donald Kerr, "Metropolitan Dominance in Canada," in *Canada, A Geographical Interpretation*, ed. by John Warkentin (Toronto: Methuen, 1967), pp.532-534.

² A footloose industry is one which has considerable choice in its location and is not tied to a particular raw material or energy source on the one hand or a specific market on the other.

Process of Growth

The increasing concentration of manufacturing in metropolitan centres, particularly in the last half of the nineteenth century has been well documented.³ For example, in the United States, New York increased its share of value added in manufacturing from 10.2% in 1860 to 13.6% in 1890 and Chicago from 0.6% to 6.4% in the same thirty years.⁴ For the most part, however, the relative growth of industry in metropolitan centres over the last sixty years has tended to approximate that of the national average and ratios have remained fairly stable.⁵

Until very recently, land for industrial growth in cities was acquired only on a modest scale. Up until the Second World War, most industries were housed in multi-story buildings in the central city or along the railway lines which radiated out. Cities expanded very slowly and their territorial extent could, in most cases, be easily defined.

"The disposition to think of a metropolitan area as a meaningful unit for study is a comparatively recent phenomenon. Time was, only four or five decades ago, when the city—not the metropolitan area—was a sufficient unit for analysis. Though urban developments sometimes wandered a little beyond the city limits, this phenomenon was far from universal. Most large cities had a "downtown" section and residential and industrial neighbourhoods, all of them built up at fairly high densities. Somewhere out near the political boundaries, short of the ends of the trolley lines, city development ended rather abruptly. Just beyond were open fields, dirt roads, and occasional amusement parks, set up to generate week-end traffic on the trolleys."⁶

It is a fact that in most western cities the direction of early growth profoundly influenced growth in subsequent years. Thus in London, England, preference for a north-westerly orientation is very striking,⁷ in Chicago, a south-westerly direction⁸ and in Toronto, a westerly to north-westerly direction.⁹ Although patterns of industrial

³ Alan Pred, *The Spatial Dynamics of U.S. Urban Industrial Growth 1800-1914*, (Cambridge, Mass: M.I.T. Press, 1966), pp.12-85.

⁴ Obviously in comparing census data for cities over a period of time, one must take into account (a) changes in the definition of criteria through time and (b) changes in the boundaries of the geographical unit, a particularly thorny problem in recent years with the rapid expansion of a large cities beyond political boundaries. This topic is considered in some detail in Chapter II.

⁵ In Chapter II the data for Metropolitan Toronto are examined in considerable detail.

⁶ E.M. Hoover and R. Vernon, *Anatomy of a Metropolis*, (New York: Doubleday, 1962), pp.1-2.

⁷ Peter Hall, *The Industries of London since 1861*, (London: Hutchinson, 1962), pp.136-137.

⁸ Leo Reeder, "Industrial Location Trends in Chicago in Comparison to Population Growth," *Land Economics*, 1954, pp.177-182.

⁹ Donald Kerr and Jacob Spelt, *The Changing Face of Toronto*, (Ottawa: The Queen's Printer, Geographical Memoir 11, 1964), pp.97-99 and 130.

growth in metropolitan centres have been greatly disturbed since World War II, industry having swept out into the suburbs in almost every direction as the demand for land has increased, basic historical orientations still exert considerable influence. For example, in Toronto the tendency for a strong westerly and north-westerly growth has persisted.¹⁰

On the basis of a number of studies, generalizations about recent industrial growth in the city, suburbs and the periphery can be made.¹¹ With few exceptions, manufacturing in the central part of large North American cities has declined relatively and in many cases absolutely. For example, in the city of Toronto, employment in manufacturing declined from a peak of 160,063 in 1950 to 134,235 in 1955 and to 107,200 in 1964, while employment in Metropolitan Toronto increased from 187,223 in 1950 to 200,352 in 1955 and to 235,200 in 1964. Clearly, aggregate growth has been confined entirely to the suburbs. Not unexpectedly, growing industries have declined much more sharply than declining industries in the central city.¹² Whereas New York's share of growing industries in the New York metropolitan area declined from 72.8% in 1929 to 64.9% in 1939 and from 46.3% in 1947 to 38.4% in 1956, its share of declining industries increased from 49.1% in 1929 to 49.2% in 1939 and from 48.3% in 1947 to 51.4% in 1956.¹³

Many large and some small industries have moved out of the central city and a few new concerns, generally with small employment, have found the area to be attractive.¹⁴ The status of the central city as an industrial area has declined but it still retains some importance in the industrial complex, housing a great variety of industry. There are those industries such as newspapers, publishing and printing concerns and bottling works which, by maintaining a location in the downtown area, either minimize transport costs or reduce delays in shipping or both. There are also a variety of industries which have regional or national markets and maintain a downtown location because of inertia or other factors such as accessibility to labour and special services.

Growth in the suburbs has been described and its processes analysed.¹⁵ Without question, the enormous increase in industrial land holdings has been the most striking phenomenon of the suburban expansion. In New York for example, buildings built

¹⁰ See M. Enright and R. MacBain, "Metro: A Have Among the Have-Nots," *The Globe and Mail*, Saturday, July 22nd, 1967, in which distinctions between Pickering township to the east, Vaughan and Markham to the north, and Toronto township to the west are drawn. In particular the strong industrial base in Toronto township as it affects the residential tax rate is contrasted with the much weaker industrial base in the other three townships.

¹¹ Hoover and Vernon, *op. cit.*; Reeder, *op. cit.*; M.I. Logan, "Locational Behaviour of Manufacturing Firms in Urban Areas," *Annals A.A.G.*, Vol. 56, No. 3, September, 1966, pp.451-466; D.E. Keeble, "Industrial Migration from Northwest London 1940-1964," *Urban Studies*, Vol. 2, No. 1, May, 1965, pp.15-32; Donald Kerr and Jacob Spelt, "Manufacturing in Downtown Toronto," *Geographical Bulletin* No. 10, 1957; Donald Kerr and Jacob Spelt, "Manufacturing in Suburban Toronto," *Canadian Geographer*, No. 12, 1958.

¹² Growing and declining industries have been classified according to absolute changes in employment over a selected period of time.

¹³ The extent of the new York Industrial area is defined by Hoover and Vernon, *op. cit.*, p.26.

¹⁴ Kerr and Spelt, "Manufacturing in Downtown Toronto."

¹⁵ E.M. Kitagawa and D.J. Bogue, *Suburbanization of Manufacturing Activities Within Standard Metropolitan Areas*, (Oxford, Ohio: Scripps Foundation, 1955).

before 1920 occupied on the average 1,040 square feet of plot space (land and buildings) per worker, in the 1930's, 2,000 square feet per worker and in the post-war period, 4,550 square feet per worker.¹⁶ It is not surprising that land acquisitions for industrial purposes in Metropolitan Toronto have more than doubled in the past two decades.

Developments in the suburbs derive from relocation of companies from the central city, the appropriation of sites by branch plants from foreign countries or other parts of the nation and new industries developing from within. Discussions turn briefly to migration from the central city.

As a general rule, companies which abandon the downtown in favour of the suburbs attempt to find a site in the same general sector of the metropolitan area. Thus, if a company is in the western part of a downtown location, it will endeavour, in relocating, to find a site in the western suburbs and as close to the former place as possible.¹⁷ It is a fact that small companies with a significant metropolitan market will not move beyond the outer edge of the metropolitan area to the periphery. Larger companies with diversified markets tend to behave in a similar fashion but for the most part the possibility of their moving into the periphery or beyond increases.

Companies setting up branch plants in the metropolitan area mainly choose a suburban site but may venture just beyond into the inner periphery. More often than not, the selection of a site in the suburbs is influenced by non-economic factors rather than economic.¹⁸

In large metropolitan areas some industries have migrated from old suburban districts to new ones or to the periphery for reasons basically the same as for those industries which moved from the central city. Keeble,¹⁹ in his study of northwest London records a significant out-migration. He notes that those industries which are moderately large in size and have retained head offices in London have moved out to designated areas in the Midlands, Wales or Scotland. A larger number, mainly small industries have moved only a very short distance indeed (a few miles) and to a large extent in a northwesterly direction. In fact most, if not all, of the latter companies would have remained at their existing sites if land had been available for expansion. In a very valuable paper, McGovern discusses most aspects of industrial dispersal, with particular reference to Ulster.²⁰

¹⁶ Hoover and Vernon, *op. cit.*, p.27.

¹⁷ Kerr and Spelt, "Manufacturing in Suburban Toronto," pp.14-16.

¹⁸ Logan in his study of Sydney draws attention to non-economic as well as economic factors. Logan, *op. cit.*

¹⁹ Keeble, *op. cit.*

²⁰ P.D. McGovern, "Industrial Dispersal," *Planning*, Vol. 31, No. 485, February, 1965, pp.1-39.

There remains only the necessity to generalize briefly on the areal growth of industry in the metropolitan centre. As mentioned, the acquisition of new territory by cities in the nineteenth and early twentieth century went on very slowly. At different times, it was necessary to acquire land for new industrial growth on the outskirts of a city. Thus, when the Massey Harris company decided to centralize operations in Toronto in 1879, it appropriated land on the western limits of Toronto near the village of Parkdale in open country, no more than two miles from the centre of the present core.²¹ The building of the C.P.R. belt line in the late nineteenth century along the base of the Iroquois shoreline on the northern limits of Toronto resulted in the subdivision of land adjacent to or near the railway. By the 1920's all of this land had been appropriated and the city in its expansion had engulfed this industrial suburb. Villages and towns in the immediate periphery of the nineteenth century city were subsequently engulfed in the expansion of the twentieth century one. Thus the town of Weston lost its identity as the metropolitan area spread beyond its limits.

In recent years the acquisition of land has gone on very rapidly and at present the metropolis is encroaching on the rural areas at an accelerated rate. Clearly, today's peripheral zone will comprise tomorrow's suburbs and outlying villages and towns will continue to be absorbed into the metropolitan unit.

Agglomeration Economies and Diseconomies

The spatial pattern of industry within a region has deep historical roots. Discussions should identify origins, reconstruct historical patterns and examine processes of change and directions of growth. For the purposes of this study, however, the spatial arrangement will be taken as given and attention will focus on contemporary developments.

The attractiveness of the metropolitan centre for new industrial development may be explained, at least in part, in terms of economies of scale or, in particular, urbanization economies.²² Accessibility to markets, suppliers, skilled labour, specialized services and so on are frequently cited as the ingredients which make up the economic structure of the metropolitan environment. Social factors are by no means insignificant, however.²³ Described in terms of such facilities as clubs, hotels, shops and educational facilities, social amenities unquestionably comprise an important part of the metropolitan environment.

But there are agglomeration diseconomies as well which, at least in part, counterbalance the economies. Competition for land in the metropolis makes costs much greater than in the small centres, in addition to which, relatively high property taxes are extracted for many services. Further, there are unfavourable social and

²¹ Merrill Dennison, *Harvest Triumphant*, Collins (White Circle Pocket Edition) p.78.

²² Walter Isard, *Location and Space-Economy*, (Cambridge, Mass.: M.I.T. Press, 1956), pp.172-188.

²³ D.E.C. Eversley, "Social and Psychological Factors in the Determination of Industrial Location," in *Papers on Regional Development: A Supplemental Volume to the Journal of Economics*, ed. by Thomas Wilson (Oxford: 1965), pp.102-114, especially pp.109-110.

economic consequences of the agglomeration such as traffic congestion and air pollution. Clearly, the industrialist who compares the qualities of the metropolis with those of the small city must attempt to evaluate what the additional cost or saving would be, if any, in choosing the small city over the metropolis. Assuming that the urbanization economies of the metropolis exceed those of the small city and that the differences are essentially those of transport costs, any decision is based, at least in large part, on the accessibility of the metropolitan centre to the small city. In short, if the industrialist decides to locate away from the metropolitan centre he will have to pay a higher price, in terms of transportation costs, to maintain links with suppliers and markets than his competitor in the metropolitan centre. In turn, such higher costs could partially or entirely be offset by savings in land or labour costs or in other ways. It may be, of course, that the industrialist would be prepared to pay a higher price for a peripheral location to free himself from the unfavourable features of the metropolis and achieve the "quiet life" of the small town. It is obvious that the distance factor is critical in many locational decisions; in fact, it becomes the principal thread around which many of the discussions in this study are woven. For it is a fact, that at an appropriate distance from the metropolitan centre, the industrialist may be able to benefit from agglomeration economies and not suffer from significant diseconomies. Put in yet another way, industrialists may be able to achieve the best of both worlds by locating within the shadow of the metropolitan centre.

Sources of Data

The two main sources of data used in this study were:

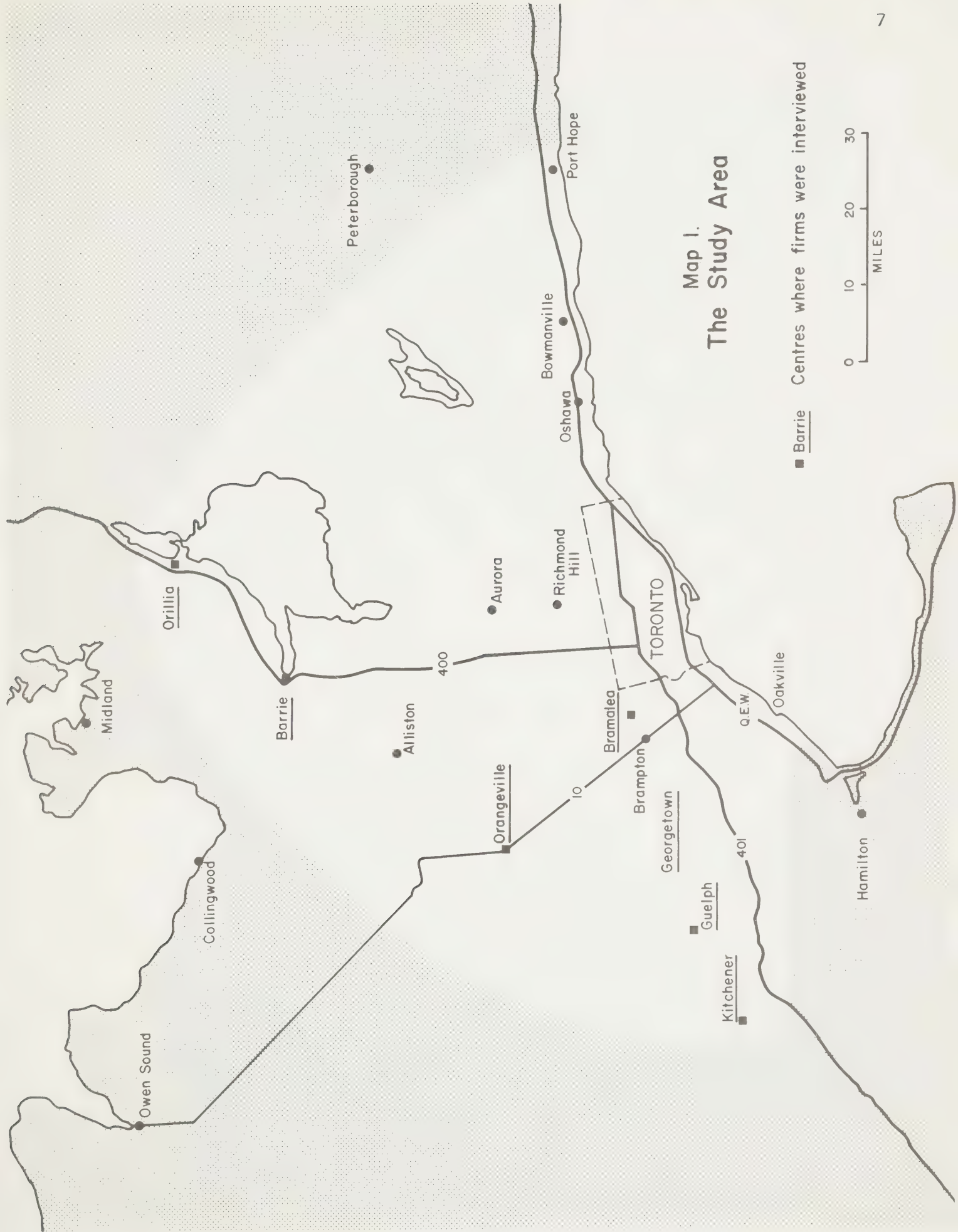
- (i) data collected from the field survey mainly in the form of completed questionnaires and notes in interviews (see below).
- (ii) published and unpublished statistics of the Census of Manufactures, Dominion Bureau of Statistics, Ottawa.

Data were also drawn from a variety of other sources including:

- (a) the *Ontario Industrial Review* and the *Industrial Directory of Municipal Data* of the Department of Economics and Development (now Trade and Development).
- (b) The Economic Atlas of Ontario project, Department of Geography, University of Toronto.
- (c) assessment rolls in towns and municipalities.

The Field Survey

It was decided quite early in this research to make a selection of towns in the periphery for study. At the outset the authors made a reconnaissance of the area, examined the relevant literature and discussed the selection of towns with planners, colleagues and others. Decisions on selection of towns were based on such variables as distance from Toronto, location relative to major transport arteries and size of the manufacturing base.



Map 1.
The Study Area

■ Barrie Centres where firms were interviewed

0 10 20 30
MILES

The field survey, carried out during the summer of 1967, included detailed interviews with 100 manufacturing firms. These plants were located in seven urban centres within a radius of about 65 miles of the political limits of Metropolitan Toronto. An additional 15 miles would have to be added if mileage were calculated from the city centre. The seven centres chosen were Bramalea, Georgetown, Orangeville, Barrie, Orillia, Guelph, and Kitchener.

Bramalea represents a new industrial node which has developed on the immediate northwestern edge of Metropolitan Toronto during the 1960's. Georgetown is a much older centre tracing its origin to the early part of the nineteenth century. Situated just over 20 miles to the west of the Metro boundary, it lies on the extreme outer fringe of the metropolitan area. Whereas Bramalea is a virtual suburb of Toronto, Georgetown is an independent centre falling within the general shadow and commuting range of the city. Orangeville, about 35 miles to the northwest of the boundary of Metropolitan Toronto, is further removed from the city than Georgetown. It is an old rural town that is now beginning to serve as a dormitory for workers who commute to the city. It is also beginning to attract some manufacturing plants of its own. Neither Georgetown nor Orangeville is located on the Highway 400 or 401 multiple-lane transport arteries. Barrie, 45 miles north of the Metro boundary, is served by Highway 400 and has been the focus of substantial industrial growth over the past 10 to 15 years. Orillia on the same highway corridor, but about 20 miles north of Barrie, can be compared with the latter centre in evaluating the effect of increasing distance from Toronto on locational preference and spatial linkages with the city. Highway 400 was completed to Barrie in 1952, whereas the improvement of the highway artery further north to Orillia has been more recent. The final two centres, Guelph and Kitchener, are situated about the same distance from Toronto as Barrie and are served by the other major transport artery, Highway 401. They are both larger in size than Barrie and have a longer tradition as manufacturing centres of some significance. They are also more strategically located relative to the markets of Southwestern Ontario. The principal reason for including Kitchener in the interview programme was to assess the extent to which local market and material linkages between manufacturing concerns in a city of this size might reduce the dependency on Toronto and contribute to its development as an independent growth pole.

In four of the centres covered in the field survey, Barrie, Orillia, Orangeville and Georgetown, the interview programme was a comprehensive one in that it included almost all of the manufacturing plants with markets extending beyond the local area. Local industries, such as dairies, bakeries, soft drink bottling plants, sawmills and newspapers, were not interviewed since their location could not be regarded as an alternative to one in Metropolitan Toronto. In each of the above four towns, the plants visited covered at least three-quarters of the total manufacturing employment in the centre. Some information on the plants which could not be interviewed, as well as those serving the local market, was obtained from the industrial commissioners and through telephone enquiries. In the other three centres, Bramalea, Guelph and Kitchener, only a sample of the manufacturing concerns was selected for inclusion in the interview programme. For Bramalea, however, it included most of the important plants.

The number of firms interviewed in each centre, and their distribution in terms of size categories, are shown in Table I. The mean size of plant in the Bramalea sample is particularly high due to the inclusion of Northern Electric which had an employment of about 3,500. Of the 100 plants included in the field survey, 55 had chosen their present location since 1959, 24 during the period 1945-59, and 21 prior to 1945. There were few items in the questionnaire to which a meaningful reply was obtained from all of the firms interviewed. In the analysis of questionnaire returns in subsequent chapters, the number of respondents to individual questions displays some variation. In the case of marketing patterns, for example, usable information was obtained from 95 of the 100 plants included in the interview programme.

TABLE I
DISTRIBUTION AND SIZE OF MANUFACTURING PLANTS
INCLUDED IN THE FIELD SURVEY

	Distance from Toronto ^a (Miles)	Number of Plants Interviewed						Total Employees	Employment	
		By Size Category (No. of Employees)							Mean	Median
		Total	1-10	11-25	26-100	101-500	501+			
Bramalea	8	12	0	1	5	5	1	4,720	393	110
Georgetown	23	19 ^b	2	3	7	6	0	1,913	106	55
Orangeville	35	7	1	2	2	2	0	467	67	70
Barrie	45	18	1	3	3	10	1	3,402	189	140
Orillia	66	18	5	1	4	7	1	2,365	131	90
Guelph	40	15	0	4	6	4	1	2,305	154	75
Kitchener	53	11	3	1	3	2	2	3,450	314	70
Total		100 ^b	12	15	30	36	6	18,622	186	85

^a Distance from Toronto has been defined as the mileage between each town and the political boundary of Metropolitan Toronto. This has been calculated from the point where Highway 400 crosses the boundary for Barrie and Orillia and where Highway 401 crosses the boundary for Georgetown, Guelph, Kitchener and Orangeville. Bramalea is only about 5 miles from the northwestern corner of the Metro boundary, but 8 miles based on the route to Highway 401 via Toronto International Airport is a more realistic figure for comparative purposes. The distance to the city centre from the points where Highways 400 and 401 cross the Metro boundary is about 15 miles.

^b The interviews for Georgetown included one firm which had not yet started operations. This plant is included in the total, but is not represented in the other columns of the table.

Time and resources did not make it possible to include plants in the Metro suburbs in the field survey. Although Bramalea lies close to the suburban fringe, it is located outside of the legal boundaries of the metropolitan centre. However, an extensive interview programme covering manufacturing plants in the suburbs had been undertaken by Kerr and Spelt in 1957 and the results of this survey, including the completed questionnaires, were available for comparative purposes.²⁴

²⁴ Kerr and Spelt, "Manufacturing in Suburban Toronto," pp.11-19.

The questionnaire used in the present study was designed to investigate the relative advantages or disadvantages associated with a location in various parts of the Toronto hinterland in comparison with a location in suburban Toronto. An extensive series of questions was devoted to transportation costs and other communication problems, labour costs and labour supply, land costs, taxes, and non-economic factors influencing location decisions. Firms were asked to discuss both the initial factors influencing their choice of location and their current evaluation of this location relative to one in greater proximity to, or farther removed from, Toronto. Spatial linkages, in terms of marketing patterns and material sources, were also measured, with particular emphasis on the intensity of the link with Metropolitan Toronto. Answers to questions relating to the labour factor were too diverse to prove of much value in the locational analysis.

CHAPTER II

GROWTH TRENDS

Over the past century there has been a marked shift in the geographic distribution of manufacturing in Southern Ontario, with increasing concentration in the Metropolitan Toronto Region. At the time of the 1881 Census, York County contained only 14 per cent of the manufacturing labour force of Southern Ontario.¹ Its share now exceeds 35 per cent and in recent decades the growth wave has spilled over into adjacent counties. A more detailed analysis, however, would reveal that the major pattern-forming period lay around the turn of the century. By 1911, York County had already increased its proportion to 30 per cent of Southern Ontario's manufacturing labour force. Since that time further concentration has taken place, but at a much slower pace. There is some confusion in the literature regarding the direction of the contemporary trends. Two fairly recent studies by economists have suggested that the locational trend of manufacturing in Southern Ontario during the late 1940's and 1950's was one of decentralization, rather than continued spatial concentration.² As explained in the

¹ Southern Ontario is felt to constitute a more meaningful regional framework for assessing centralization trends with respect to Metropolitan Toronto than would the Province as a whole. However, in analysing shifts over the past fifty years, essentially the same trend would emerge irrespective of which base was used. Northern Ontario's share of the Province's manufacturing employment has fluctuated within the restricted range of 4.5 to 6.5 per cent since 1911. Southern Ontario has been defined to exclude the nine districts encompassed by the Northeast and Northwest Economic Regions (viz. Algoma, Cochrane, Manitoulin, Nipissing, Sudbury, Timiskaming, Kenora, Rainy River, and Thunder Bay).

² David W. Slater, "Decentralization of Urban Peoples and Manufacturing Activity in Canada," *Canadian Journal of Economics and Political Science*, XXVII (Feb., 1961), 72-84; Keith A.J. Hay, "Trends in the Location of Industry in Ontario 1945-1959," *Canadian Journal of Economics and Political Science*, XXXI (Aug., 1965), 368-81.

Both Slater and Hay recognized two types of decentralization process: diffusion (or suburbanization) which refers to movements, or differences in growth rate, between the centre and immediate periphery of large cities, and dispersion which refers to a reduced concentration of manufacturing in the broader regional sense. Both authors concluded that a process of dispersion was taking place in Ontario in the post-World War II period in addition to the more normal process of diffusion.

Slater based his conclusions on an analysis of trends in the period up to 1956, using the province as a whole as his regional framework and evaluating the changing percentage share of manufacturing employment in the five-county Metropolitan Region between Oshawa and Hamilton (viz. Ontario, York, Peel, Halton and Wentworth Counties) at selected intervals. His table records a startling decline in this region's share of the total manufacturing employment in the Province from 41.6 per cent in 1948 to 38.5 per cent in 1951 and 33.1 per cent in 1956. It is not clear how these figures could have been derived from the Census of Manufactures, the stated source. In the above three years, the five counties in fact accounted for 46.3, 48.4, and 50.1 per cent of Ontario's manufacturing employees.

Hay employed the coefficient of variation to measure changes in the spatial concentration of manufacturing in Southern Ontario over the fifteen-year period 1945-59. His regional framework consisted of forty counties, excluding Huron and Bruce as well as Haliburton, Muskoka and Parry Sound on the southern fringe of the Shield. The coefficient of variation, or standard deviation of the distribution expressed as a percentage of the arithmetic mean, was calculated for each of the fifteen years. The higher the value of the coefficient in any given year, the greater the relative disparity in the amount of manufacturing amongst the areal units used in the analysis or, to put it in another way, the greater the spatial concentration. To analyse changes in the distribution of manufacturing in the broader regional sense, the forty counties were used in calculating the coefficient. To measure the diffusion or suburbanization process, the number of areal units was increased to forty-nine by subdividing counties with major cities into two or more component parts. Coefficients were calculated on the basis of both employment and value added in manufacturing. When the coefficients for the forty counties were

preceding footnote, however, there is reason to question the validity of this conclusion. Clearly, a careful examination of growth trends, with particular reference to Metropolitan Toronto and its hinterland, is essential to the present study.

In this chapter, general trends in the spatial concentration of manufacturing in the Metropolitan Toronto Region, in relation to the remainder of Southern Ontario, are first assessed. This is followed by an analysis of areal changes in the distribution of manufacturing within the Metropolitan Region, with the focus on the outward spread of manufacturing to the suburbs and urban centres in the fringe zone falling within a radius of about twenty miles of the contemporary political boundaries of the metropolitan area. Finally, growth trends are evaluated in a broader hinterland belt extending out some sixty miles from Toronto to determine how urban centres located within about one hour's travelling time of the suburban fringe have fared in relation to the manufacturing growth trends of the core area.

Centralization Trends: 1932-65

The primary objective of this section is to assess the extent to which manufacturing in Southern Ontario has been centralizing or decentralizing over the past several decades in relation to the Toronto core region and, in particular, to evaluate the direction and strength of the contemporary trends. In addition, some consideration is given to the type of manufacturing establishments attracted to the Metro Region in terms of their size and ownership characteristics.

Data and Methodology

County statistics provide a more comprehensive and reliable base for measuring changes in the spatial pattern of manufacturing in a region such as Southern Ontario than do aggregations of data for urban centres. Data are not available for some cities and towns due to the disclosure rule, while in other cases manufacturing activity has spread outward into adjacent rural areas. Statistics from the annual Census of Manufacturers have been published on a county basis since 1932. The most recent year for which data could be obtained was 1965. Manufacturing growth trends have been analysed for the intervening 34-year period.³ The Metro Toronto Region has been

regressed on time, there was evidence of some downtrend in the values over the fifteen-year period. This was interpreted as confirmation of the dispersion process noted in the earlier work by Slater. The coefficient of variation, however, is a summary measure. It fails to reveal which areal units participated in the relative shift. The decline in Hay's coefficients could reflect no more than a relative movement from the core areas of Metropolitan Toronto and Hamilton in York and Wentworth Counties to developing suburbs in adjacent counties. In other words, the forty-county analysis may simply have been measuring the diffusion or suburbanization process in a more limited way than the coefficients based on forty-nine areal units. At least part of the decline can also be attributed to a significant relative downtrend of manufacturing in the Windsor area during the 1950's. It is impossible to draw any firm conclusions regarding changes in the spatial concentration of Southern Ontario's manufacturing, with regards to the Metropolitan Toronto Region, from the trend of Hay's coefficients.

³ Measures of manufacturing based on county areal units have been calculated from statistics in the annual D.B.S. reports, *The Manufacturing Industries of Canada* for the period 1932-60. Data for 1961-64 were derived from the D.B.S. Daily Bulletin Supplement, *Advance Statement No. 2, Summary Statistics of Manufacturing Industries, by Census Division or County, 1964*. The 1961 data in the above bulletin have been revised from those published earlier in *The Manufacturing Industries of Canada, 1961, Section G*. Data for 1965 were obtained in unpublished form from the Manufacturing and Primary Industries Division, Economic Statistics Branch of D.B.S.

defined to encompass the four counties of Ontario, York, Peel, and Halton.⁴

Two criteria, employment and number of establishments, have been used to measure shifts in the distribution of manufacturing. Employment is considered to be the more meaningful of the two measures in assessing centralization trends. The establishment trends are of considerable interest, however, since they have differed significantly in intensity from those based on employment. Value added in manufacturing has not been calculated for all years in the series, but the change in spatial concentration over the past few decades has been generally comparable to that of employment.⁵ For the post-1950 years, centralization trends for manufacturing employment have also been compared with those for population.

During the 34-year period under review, the labour force in manufacturing in Southern Ontario has more than tripled, rising from about 220,000 in the early 1930's to over 700,000 in the mid-1960's. During the same period the number of manufacturing establishments grew by not more than 50 per cent. The rate at which manufacturing employment has expanded has varied substantially. The post-war rates are of primary interest in this study. Due to a relapse in 1954 and again in the late 1950's, only a six per cent increase was recorded in the number of manufacturing employees in Southern Ontario between 1950 (531,000) and 1960 (564,000). The growth since 1961 has been much more rapid, even when allowance is made for a change in the method of compiling employment figures which has resulted in some discontinuity between the pre-1961 and post-1961 data. The introduction of a new "establishment concept" and a "total activity concept" in the Census of Manufactures, beginning with the 1961 data, complicates the measurement and interpretation of distributional trends.⁶ However, the evidence suggests that the definitional changes have had little effect on the relative measures of distribution employed in this study.

⁴ It could be argued that the eastern part of Burlington which falls within Halton County should be excluded from the four-county region since it belongs to the fringe of Metropolitan Hamilton and its relative growth may be partially at the expense of the central part of the latter city. Due to disclosure problems involving Oakville, data have not been published for the eastern part of Burlington in recent years. However, they can be derived by subtracting the totals for Wentworth County from those which have been released for the Metropolitan Hamilton census area. The eastern part of Burlington in 1964 accounted for almost 0.6 per cent of the manufacturing employment in Southern Ontario in contrast to little more than 0.1 per cent in 1951.

⁵ From his analysis of coefficients of variation for the 1945-59 period, Hay concluded that value added had shown a more significant tendency towards decentralization than had employment. This suggested that new plants in less industrialized areas tended to be relatively capital-intensive. Although there might be some validity to such an hypothesis, it requires further testing before it can be accepted as a general principle. The automobile industry is characterized by a substantially higher value added per employee than most other types of manufacturing. Hay's results could have been conditioned to a significant extent by changes in the distribution of this one industry. There has probably been a tendency also for the less labour-intensive industries to participate more actively in the suburbanization process. In the case of Metropolitan Toronto this has involved a shift in the relative distribution of manufacturing across county lines.

⁶ The new establishment concept was introduced in the 1961 Census of Manufactures. Provincial totals have been recalculated by D.B.S. on the basis of the new concept for the preceding four years in order to provide some measure of the effect of the definitional change. For Ontario as a whole, it resulted in a decline of about 10 per cent in the total number of establishments. For Southern Ontario, the number of establishments appears to have increased from about 9,000 in the early 1930's to just over 12,000 in 1965, or by 35 per cent. If allowance is made for the change in definition, the growth would be closer to 50 per cent. Although the introduction of the new concept would be unlikely to affect significantly measures of the relative distribution of establishments

The percentage share of Southern Ontario's manufacturing located in the four-county Metro Region has been calculated for each of the 34 years, with separate subtotals for York County and the three other counties combined. In Table II the per cents have been averaged for successive 5-year periods in order to even out irregular annual fluctuations, while in Table III the figures have been tabulated annually for the post-1950 period. Table III also includes measures of population concentration for the 1951, 1956, 1961, and 1966 census years. The annual figures in Table III reveal certain changes in the distribution of manufacturing employment after 1961 that do not show up in the five-year averages. The annual per cents for the entire 34-year period have been plotted as graphs in Figures 1 and 2.

TABLE II
CONCENTRATION OF MANUFACTURING IN THE
METROPOLITAN TORONTO REGION 1932-65

5-year Averages	% of Employment				% of Establishments			
	Southern Ontario	Metro Region	York	Ontario Halton Peel	Southern Ontario	Metro Region	York	Ontario Halton Peel
1932-35	100	39.8	36.4	3.4	100	32.9	30.0	2.9
1936-40	100	38.2	34.8	3.4	100	35.4	32.6	2.8
1941-45	100	41.4	36.6	4.8	100	38.5	35.7	2.8
1946-50	100	39.2	35.2	4.0	100	40.6	37.3	3.3
1951-55	100	42.5	35.4	7.1	100	42.7	38.9	3.8
1956-60	100	44.7	36.4	8.3	100	44.0	39.3	4.7
1961-65	100	46.1	37.0	9.1	100	47.4	41.2	6.2

between the Metro Region and the remainder of Southern Ontario, an attempt has been made to eliminate it as a variable in some parts of the subsequent analysis.

Definitional changes affecting employment figures have been more complex. Recalculation of provincial manufacturing employment totals for the late 1950's on the basis of the revised standard industrial classification of 1960 and the new establishment concept of 1961 resulted in a loss of about 8,000 employees for Ontario, a reduction of just over one per cent. The introduction of the total activity concept in the 1962 Census of Manufactures was of greater significance. All 1961 figures used in this study have been revised to conform to the new total activity definition. Under the new definition, the total employees category excludes working owners and partners, but includes some personnel of manufacturing firms that were not previously counted. The net effect of the shift to the total activity concept, when applied to the 1961 figures for Ontario as a whole, was an increase of about 46,000 or about seven per cent in the employment of manufacturing firms. Part of this increase can be attributed to a more complete coverage of separately located head offices. Formerly those that were surveyed were included in the county totals. With the introduction of the total activity concept, employment in *separately located* head offices, sales offices, warehouses, etc., totalling about 25,000 for Ontario, has been listed independently rather than in the county figures. These offices are not classified as establishments. In calculating the Metro Region's share of Southern Ontario's manufacturing employment for the 1961-65 period, the Southern Ontario total was derived by subtracting both the Northern Ontario and the aforementioned "head office - sales office, etc." figures from the provincial total. These adjustments could affect, at least slightly, the measured change in spatial concentration of manufacturing employment between 1960 and 1961. However, they would not affect the trends prior, or subsequent, to those years.

TABLE III
CONCENTRATION OF MANUFACTURING AND POPULATION
IN THE METROPOLITAN TORONTO REGION 1950-65:
ANNUAL PER CENTS

	PER CENT OF SOUTHERN ONTARIO TOTAL					
	Manufacturing Employment		Manufacturing Establishments		Population	Urban Population*
	York County	Metro Region	York County	Metro Region	Metro Region	Metro Region
1950	35.7	40.6	38.0	41.4		
1951	35.2	40.8	38.3	41.8	33.6	41.3
1952	35.0	41.5	38.9	42.6		
1953	35.3	42.8	39.0	42.8		
1954	36.2	44.2	39.3	43.1		
1955	35.4	43.4	39.1	43.2		
1956	35.2	43.4	39.4	43.6	35.6	42.9
1957	35.5	44.3	38.9	43.4		
1958	36.8	45.7	39.4	44.0		
1959	37.2	44.9	39.5	44.3		
1960	37.3	45.2	39.3	44.7		
1961	37.9	46.1	40.6	46.2	37.8	45.3 (45.8)
1962	37.4	46.1	40.8	46.8		
1963	37.0	46.3	41.1	47.1		
1964	36.5	46.0	41.5	48.1		
1965	35.9	45.8	41.9	48.8		
1966					40.2	47.2

* The per cent of Southern Ontario's urban population falling within the Metro Region for 1951, 1956, and the first figure for 1961 are based on the 1956 census definition of urban population. The second figure for 1961, enclosed in brackets, and the 1966 per cent are based on the 1961 definition.

FIGURE 1.

Trends in the Percentage Share of Southern
Ontario's Manufacturing Employees in York County
and the Four-County Metro Region

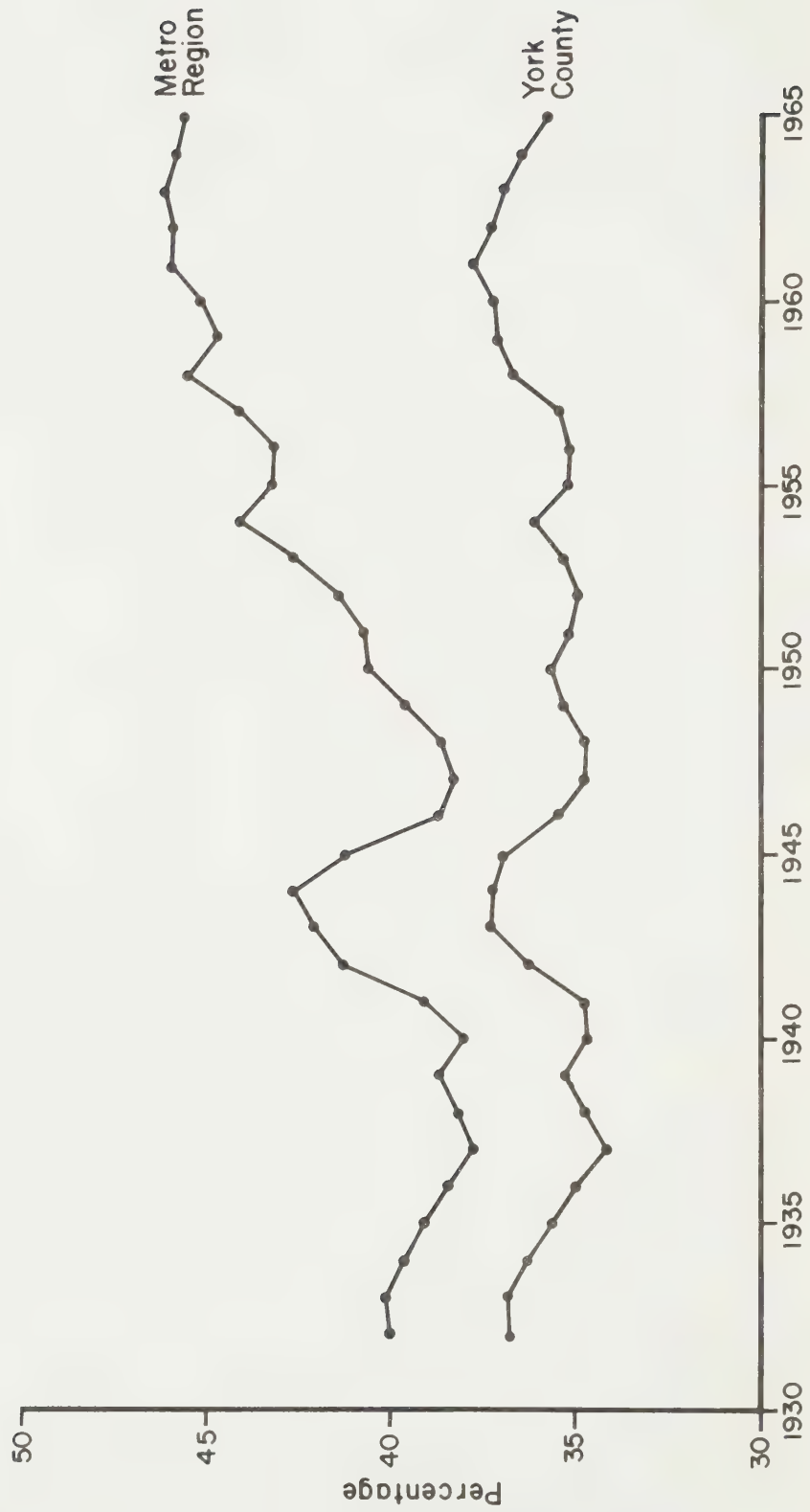
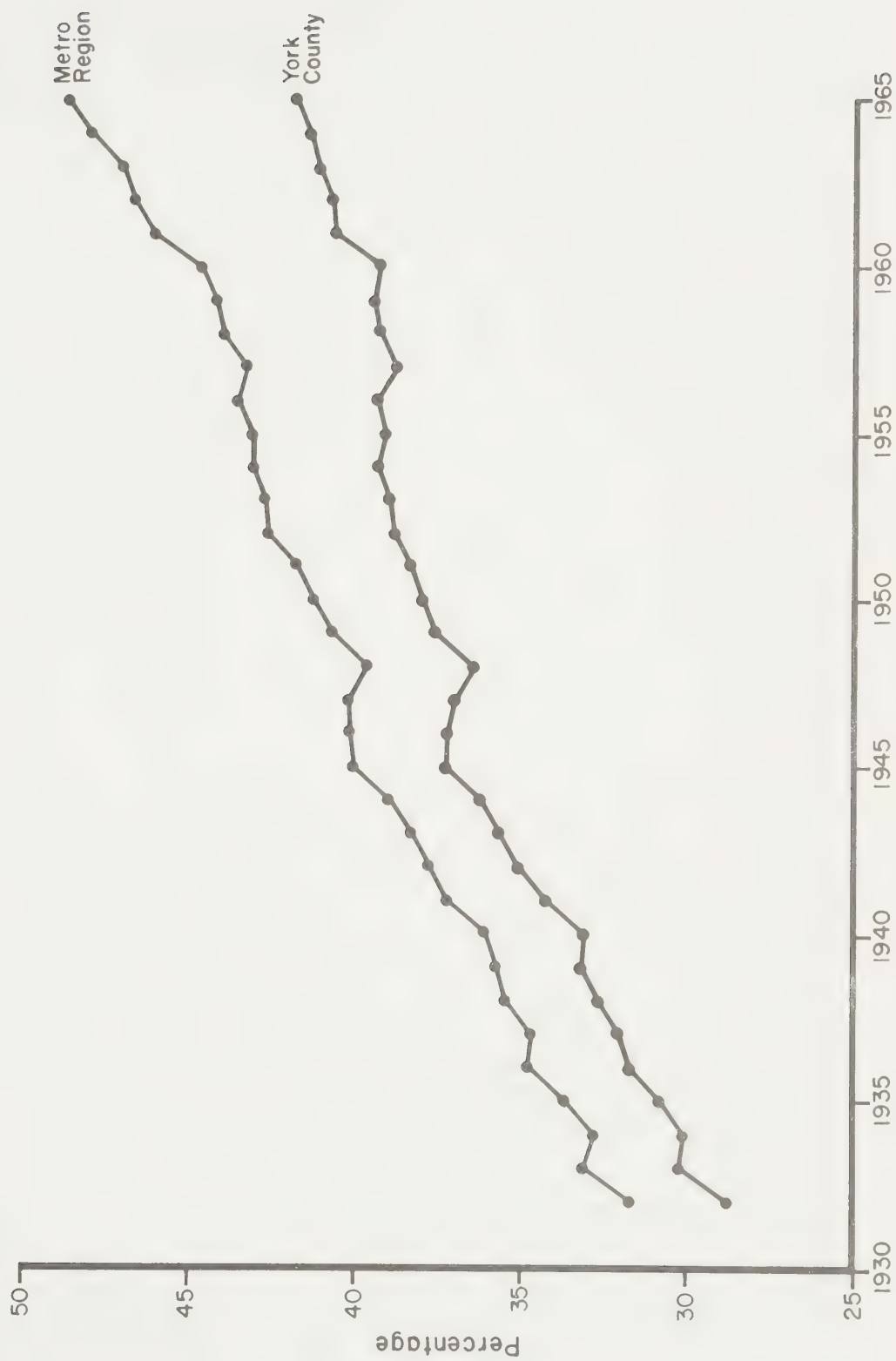


FIGURE 2

Trends in the Percentage Share of Southern Ontario's Manufacturing Establishments in York County and the Four-County Metro Region



Employment in Manufacturing: Centralization Trends

The graphed data in Figures 1 and 2 and the five-year averages of Table II show that there has been a significant increase in the proportion of Southern Ontario's manufacturing falling within the four-county Metro Region over the past several decades. However, the trend has been both less consistent and less pronounced when employment is used as the measure than when it is based on number of establishments. Over the 34-year period the four counties have increased their share of Southern Ontario's manufacturing labour force from about 40 to 46 per cent. In contrast, their share of the establishments has risen from only one-third to almost one-half of the total. The shift in terms of value added in manufacturing has been of the same general magnitude as that based on employment (viz. from an average of about 40 per cent in the early 1930's to 45 per cent in the 1960's).

The spatial concentration, in terms of manufacturing employment, suffered a temporary setback during the mid-1930's and again at the end of the Second World War. By 1950 it had barely regained the level at which it stood during the early 1930's. However, from 1948 through to 1963 there was a clear uptrend, despite minor reversals in a few years.⁷ As noted previously, an increase of only 33,000 or six per cent was recorded in the total manufacturing employment for Southern Ontario between 1950 and 1960. During this period, however, the four counties of the Metro Region registered a growth of 39,000 or 18 per cent, while the remainder of Southern Ontario showed a slight absolute decline. Viewed in terms of the Metropolitan Toronto Region, Slater and Hay's⁸ contention that manufacturing in Southern Ontario was decentralizing during the first ten to fifteen years of the postwar period is quite misleading.

Between 1961 and 1965 there was a levelling off, and even the beginnings of a slight downtrend in the concentration of manufacturing employment in the Metro Region. York County's share of the total employment rose progressively during the late 1950's to reach an all time peak in 1961. Thereafter, it declined steadily. In 1962 and 1963 the growth in the adjacent three counties was sufficient to offset the relative decline in York, but in 1964 and 1965 even the combined per cent for the four counties began to drop. During the postwar period the suburbanization process has led to a marked spillover of manufacturing growth from York to the other three counties, with the latter accounting for a progressively larger share of the manufacturing activity of the Metro Region. The beginning of what may be a sustained downtrend for York is therefore not surprising. It would be premature to judge the longer-term significance of the levelling off and slight reversal of the centralization trend for the Metro Region as a whole. Data for 1966 and subsequent years, as they become available, will be of particular interest in determining whether the developments of the 1961-65 period represent more than a short-term fluctuation.

⁷ Only 0.5 per cent of the 5.0 per cent increase for the four counties since 1950 can be attributed to the eastern part of Burlington (*Infra*, footnote 4, p.5). Almost all of the relative gain by Burlington was registered between 1950 and 1961.

⁸ See Footnote 2.

In the meantime, population has continued to gravitate to the Metro Region. There has been no slowdown in the trend towards concentration parallel to that of manufacturing employment. In Table III, the proportion of Southern Ontario's total population and urban population falling within the four-county Metro Region has been tabulated for the four census years of the post-1950 period. The percentage shares for both measures of population continued to increase significantly between 1961 and 1966. In this connection, the experience in the United Kingdom is worth noting. Although efforts to curb the centralization process with regards to manufacturing employment have met with some success, the process of spatial concentration for other types of urban employment has continued unabated.

Manufacturing Establishments: Centralization Trends

The trend towards increased concentration of Southern Ontario's manufacturing activity in the Metro Region appears exceptionally steep over the past several decades when the distribution of manufacturing establishments is used to measure the centralization process. Moreover, there has been no levelling off of the upward trend for either the Metro Region or York County during the 1960's, as was observed with employment.

In Table IV, changes in the number of manufacturing establishments in the Metro Region and the Remainder of Southern Ontario have been analysed for the 1932-65 period. The change between 1960 and 1961, which was partially a function of the introduction of the new establishment concept, has been eliminated in the calculations. Net growth or decline has been tabulated for four sub-periods: 1932-40, 1940-50, 1950-60, and 1961-65. Throughout the entire period the Metro Region has accounted for a highly disproportionate share of the growth. Only during the latter half of the 1940's did the remainder of Southern Ontario account for as much as 50 per cent of the increase and this was counterbalanced by a share of only 14 per cent during the first half of that decade. For the 34-year period as a whole, 80 per cent of the total growth in number of establishments was concentrated in the Metro Region if the 1960-61 changes are discounted, and 95 per cent if the decline between the latter two years is included in the calculations. The extent to which the new establishment concept had a differential effect on the number of establishments in the Metro Region and other areas cannot be determined. That the four Metro counties dropped only 179 between 1960 and 1961 in contrast to 624 for the rest of Southern Ontario must be attributed, at least in part, to a greater real growth in the Metro Region.

When the remainder of Southern Ontario outside the Metro Region is viewed in the aggregate, as it is in Table IV, all of the increase in number of establishments during the 1960's appears to have been concentrated in the Metro Region. The same pattern prevailed during the latter half of the 1950's. The rest of Southern Ontario experienced an absolute decline. A more detailed regional analysis, however, would reveal some inequalities in the trends outside of the Metro Region. The more rural counties have experienced the greatest loss, while a few individual counties have registered significant gains. To illustrate some of these inequalities, the number of establishments recorded in the 1964 Census of Manufactures is compared with that of 1950, in Table V. Between these two years, the number of manufacturing establishments reported for the four-county Metro Region increased by 20 per cent, while a reduction of almost 10 per cent was recorded for the remainder of Southern Ontario. However, three individual

TABLE IV

CHANGES IN THE NUMBER OF MANUFACTURING ESTABLISHMENTS
IN SOUTHERN ONTARIO AND THE METRO REGION 1932-65.

	No. of Establishments				% of Total			Increases in Number				% of Total Increase			
	1932	1960	1961	1965	1932	1965		1932-40	1940-50	1950-60	1961-65	1932-40	1940-50	1950-60	1961-65
York County	2,552	4,936	4,773	5,103	28.8	41.9		545	1,382	457	330	119	56	59	78
Metro Region	2,809	5,609	5,430	5,939	31.7	48.8		559	1,514	727	509	122	62	95	121
Rest of															
S. Ontario	6,060	6,941	6,317	6,229	68.3	51.2		-102	941	42	-88	-22	38	5	-21
S. Ontario															
Total	8,869	12,550	11,747	12,168	100	100		457	2,455	769	421	100	100	100	100

counties (Essex, Elgin and Brant) had a relative increase approximating that of the Metro Region and only 30 of the 42 counties outside the Metro area contributed directly to the absolute decline. It will be noted that almost all of the counties which showed any significant increase are contiguous to those of the Toronto-Hamilton axis.

TABLE V
SUMMARY OF CHANGES IN THE NUMBER OF
MANUFACTURING ESTABLISHMENTS BY COUNTY 1950-64.

	No. of Establishments		Increase ^a	% Increase ^a
	1950	1964	1950-64	1950-64
Southern Ontario	11,781	12,144	363	3
Metro Region	4,882	5,834	952	20
Rest of S. Ontario	6,899	6,310	-589	-9
Essex	395	485	90	23
Elgin	98	119	21	21
Brant	193	239	46	24
Waterloo	508	571	63	12
Dufferin	32	37	5	16
Simcoe	229	248	19	8
Lincoln	208	221	13	6
All other counties	5,236	4,390	-846	Less than 5 ^b

^a The increase between 1950 and 1964 includes the losses associated with the introduction of the new establishment concept in 1961.

^b Five other counties (Kent, Middlesex, Wellington, Wentworth, and Welland), with a combined total of almost 1,700 establishments in 1950, recorded a collective gain of 44 establishments during the period. Individually, the relative increases in these counties ranged between zero and five per cent. The remaining 30 counties all recorded fewer establishments in the 1964 census than in the census of 1950. The average loss for this group was about 25 per cent.

Clearly the forces of concentration affecting the distribution of establishments over the past several decades have been much stronger than those associated with employment in manufacturing. The net result has been a progressive downtrend in the average size of establishment in Metropolitan Toronto relative to the remainder of Southern Ontario. Prior to 1945 the Toronto region, defined either in terms of the four counties or York County alone, was characterized by somewhat larger establishments than other parts of the Southern Ontario region. Now the reverse situation prevails. The trend in establishment size is summarized in Table VI. Since the early 1930's the average number of employees per establishment in the Metro Region has increased about 75 per cent, but throughout the remainder of Southern Ontario it has almost tripled. If the establishment graphs of Figure 2 were superimposed on the employment graphs of Figure 1, a well-defined scissors pattern would be seen for York County, with the trend lines crossing in the mid-1940's. In every year prior to 1945, York's share of Southern Ontario's manufacturing employment exceeded its share of the establishments. Since

1945 the reverse relationship has developed and the gap continues to widen. A similar scissors pattern now seems to be developing in the establishment and employment trend lines for the four-county Metro Region. In the case of York County, part of the relative decline in establishment size in comparison to the remainder of Southern Ontario could be due to the migration of larger plants from the central core of Metropolitan Toronto to the suburban fringes in adjacent counties as they seek room for expansion. However, this explanation would not suffice for the relative downtrend in the more broadly defined Metro Region.

TABLE VI
TRENDS IN THE AVERAGE SIZE OF MANUFACTURING
ESTABLISHMENTS 1932-65

5-Year Averages	Employees per Establishment				REST OF SOUTHERN ONTARIO
	SOUTHERN ONTARIO	METRO REGION			
		York	Ontario, Peel & Halton	Total	
1932-35	26	31	30	31	23
1936-40	33	40	35	40	31
1941-45	50	52	87	55	48
1946-50	45	42	57	44	46
1951-55	47	43	88	47	47
1956-60	47	43	83	47	46
1961-65	53	47	78	51	55
1965	60	49	84	54	66
1965 as a % of 1932-35	235	160	280	175	285

Two factors would appear to contribute to the stronger centralization trends for manufacturing establishments than for employment, and for the associated changes in the relative size characteristics of plants in the Metro Region. Changes in the number of manufacturing establishments reflect both the birth of new plants and the closure of others. Improvements in transportation and savings resulting from economies of scale could account for the disappearance of many small enterprises in rural counties in industries such as milk-processing or bakery goods. Their disappearance, or consolidation into larger units, would affect both the number and average size of establishments remaining in such counties. At the same time, it seems reasonable to conclude from the trends that Metropolitan Toronto has increasingly exercised a rather unique attraction for new enterprises in the smallest size category and that it has become a breeding ground for mini-establishments of this type to a degree that is completely out of proportion to its general role in the manufacturing activity of the Province.

Contemporary trends in the location of new plants in the larger size categories are investigated in the following section using data from sources independent of the Census of Manufactures.

Recent Trends in the Location of New Plants

An additional source of information on locational trends of manufacturing plants in the Province of Ontario is the list of new establishments compiled annually by the Ontario Department of Trade and Development (formerly the Department of Economics & Development) and published in the *Ontario Industrial Review*. The procedures followed in compiling these lists have not been completely consistent over the years and some care must be taken in their use. However, they do provide an additional measure of insight into contemporary locational trends or what has sometimes been referred to as the "active margin" of locational preference.

Several important differences must be noted between the provincial list of new manufacturing establishments and changes in the number of establishments recorded in the Census of Manufactures. Firstly, the provincial list excludes very small firms with few, if any, employees other than the owner. Since 1964 the requirement for inclusion in the list has been formalized to encompass only those establishments which either employ 10 or more persons, occupy 5,000 square feet of manufacturing or assembly space, or have sales in excess of \$100,000 annually. Prior to 1964 the list was stated to include only the more important new plants. Judging from the number of establishments recorded each year, however, the pre-1964 procedures relating to plant size appear to have been generally comparable to those now in use. A second major difference stems from the fact that the provincial list does not include plant closures. It cannot be used, like the census data, to measure net changes in the number of establishments, or the excess of births over deaths. Moreover, since the provincial list is intended to cover only manufacturing establishments new to the Province, it does not include plants which have simply shifted from one location to another within the region. The analysis in this study has been based on a compilation of new manufacturing establishments, including branch plants, for the 12-year period 1956-67. Changes in the classification system and terminology employed in the annual provincial lists, which are of relevance to this compilation, are discussed in the footnote below.⁹

One of the most useful features of the provincial list of new manufacturing establishments is the classification of plants in terms of their country of origin. Thus it is possible to determine whether there have been significant differences in locational

⁹ Since 1965, all new manufacturing establishments have been included in a single list. A separate tabulation entitled "plant expansions" is used to cover both additions to plant at the existing site and expansion at a new site associated with a shift in location. No distinction is made between the two types of expansion in the latter list. Shifts in location within the province involving no expansion would not be recorded at all. Between 1955 and 1964 new establishments were divided into two groups, with a separate list for branch plants of firms already engaged in manufacturing within the province. Although the branch plant list was sometimes referred to as expansions at a new site, it was not intended to include shifts in location involving a shutdown of operations at a previous site within the province. The one exception to this rule seems to have been 1964; in the latter year the list did include shifts in location as well as branch plants. However, the 51 establishments included in this tabulation account for less than three per cent of the new plants recorded during the 12-year period on which the analysis of location patterns in this section is based; and about half of the 51 would have consisted of new branch plants. In view of the small number of establishments involved, the inclusion of all plants in the 1964 list of expansions at a new site will not significantly affect the results of the investigation. Owing to the diffusion of manufacturing from the city centre to the suburbs, a disproportionate share of the plants, resulting from a shift in location, would be concentrated in the Metro Region. Prior to 1955, branch plants of Ontario-based firms were not listed separately. However, whereas they are now included with the new manufacturing establishments, prior to 1955 they appear to have been treated as plant expansions.

behaviour between plants of domestic origin and those which have been established by United States or overseas companies, and to evaluate the implications of these differences with regards to the centralization process. It is essential that the term "origin," as employed in this classification scheme, be clearly understood. New branch plants of manufacturing concerns with a parent establishment already located in Canada are considered to be of Canadian origin, even when the parent is itself a subsidiary of a foreign company. During the period when branch plants were recorded in a separate list, the term "branch" was applied to subsidiaries of firms with an already established parent operation in Ontario. Thus, a branch plant of a parent establishment located in another province, would be included in the list of new firms rather than in the branch plant tabulation.

In Table VII, the distribution of new manufacturing establishments between the four-county Metro Region and the remainder of Southern Ontario has been analysed for the 12-year period as a whole. During this period the Metro Region (excluding the eastern part of Burlington), accounted for 42 per cent of the new plants, a proportion very much in line with the region's share of Southern Ontario's manufacturing employment. It will be recalled from Table III that the latter rose from about 41 per cent in the early 1950's to 46 per cent during the first half of the 1960's. York County accounted for only 27 per cent of the new plants, a proportion somewhat lower than its share of the manufacturing employment throughout the period (about 36 per cent) and substantially below its share of the total manufacturing establishments (42 per cent in 1965) recorded in the Census of Manufactures. The difference can be attributed to the factors discussed in the preceding section: 1) the fact that very small firms, excluded in the provincial listings, have been attracted in disproportionate numbers to Toronto, and 2) the fact that the provincial lists do not reflect the disappearance of many small rural-oriented manufacturing establishments throughout the remainder of the province.

Unquestionably the most significant finding to emerge from Table VI is the remarkable difference in the pattern of origin between the establishments which have selected a location in the Metro Region, and even more so in York County, and those which have located elsewhere in Southern Ontario. The pattern is shown in two different ways: 1) by calculating each area's share of the plants of a given type of origin, and 2) by calculating the percentage composition of the new plants in each region in terms of the three types of origin. Over the 12-year period the Metro Region has attracted 53 per cent of the new manufacturing establishments of U.S. origin, and 58 per cent of those of overseas origin, in contrast to only 35 per cent of the new plants of domestic origin. The relative divergence of the percentages for York County alone is even higher. Although Ontario, Peel and Halton Counties have collectively accounted for as large a share of the new plants of Canadian origin as their share of the foreign plants, the locational pull on foreign plants has still been greater, in a relative sense, than that exerted by the remainder of Southern Ontario.

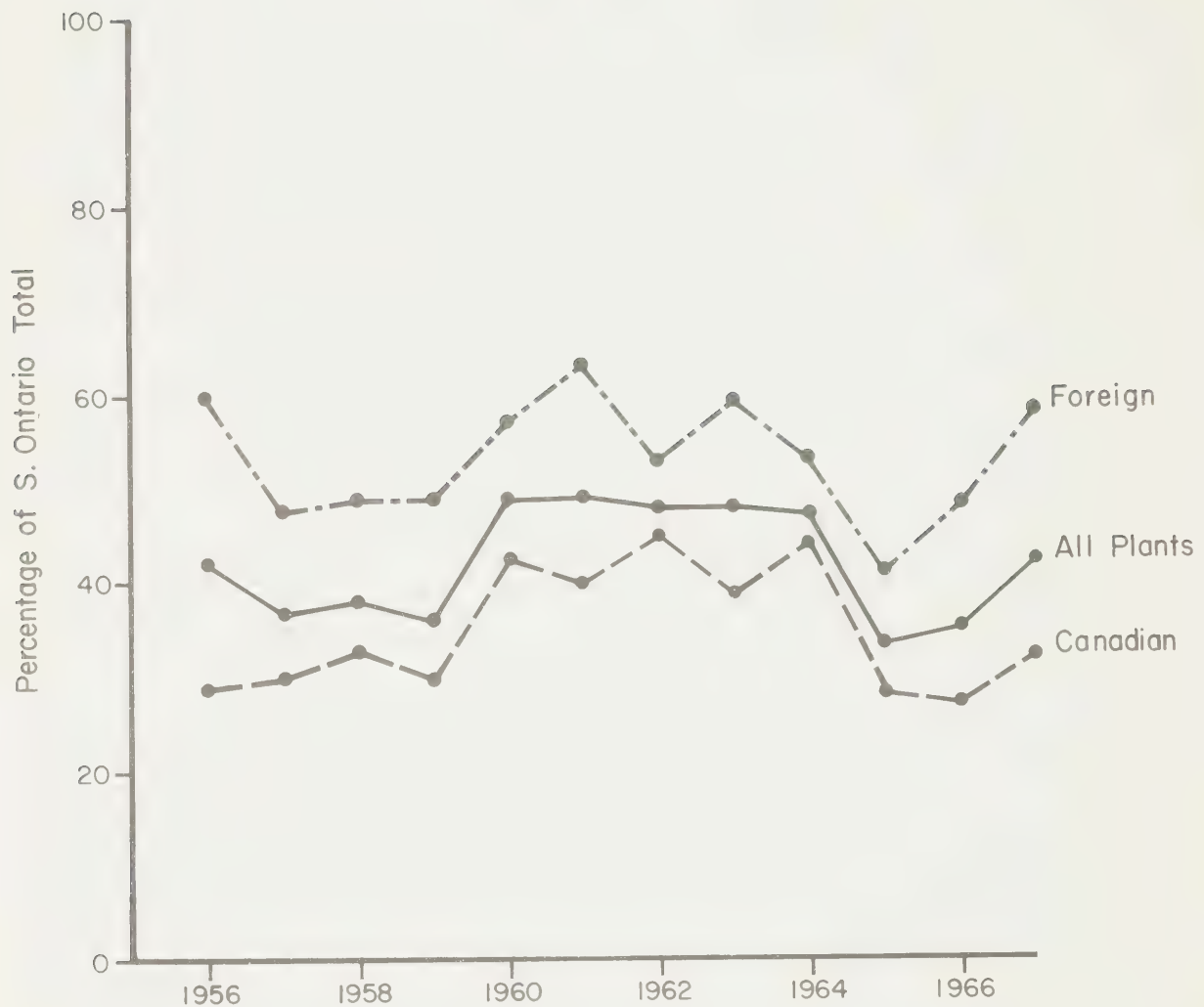
In Figure 3, three graphs have been plotted. They show the Metro Region's percentage share of all new manufacturing establishments, those of Canadian origin, and those of foreign origin for each of the twelve years in the series. The pattern is exceptionally consistent, in that the per cent of foreign plants exceeds the per cent of Canadian plants in every individual year.

TABLE VII
DISTRIBUTION OF NEW MANUFACTURING ESTABLISHMENTS IN
SOUTHERN ONTARIO 1956-1967^a

	Southern Ontario	Metro Region	York County	Ontario, Peel & Halton	Rest of S. Ontario
Number of Plants					
All plants	1,930	813	513	300	1,117
Canadian origin	1,194	419	237	182	775
U.S. origin	637	337	233	104	300
Other origin	99	57	43	14	42
% of S. Ont. Total					
All plants	100%	42	27	15	58
Canadian origin	100%	35	20	15	65
U.S. origin	100%	53	37	16	47
Other origin	100%	58	44	14	42
% of Regional Total					
All plants	100%	100%	100%	100%	100%
Canadian origin	62	52	46	60	69
U.S. origin	33	41	45	35	27
Other origin	5.1	7.1	8.4	4.7	3.7

^a Compiled from lists of new manufacturing establishments published annually by the Ontario Department of Trade and Development (formerly the Department of Economics and Development) in the *Ontario Industrial Review*. The table includes both new firms and new branch plants of firms already located in Ontario. Plants in Northern Ontario (Northeast and Northwest Economic Regions) have been excluded in the compilations for this table. Plants listing Burlington as a location have not been counted as falling within the four-county Metro Region, even though the eastern part of this centre extends into Halton County.

FIGURE 3



Proportion of All New Plants, Plants of Canadian Origin, and Plants of Foreign Origin Which Located in the Four-County Metro Region, 1956-67

In Table VII, the data have been grouped for further analysis into three sub-periods, each of four years duration. It will be noted from Figure 3 that the Metro Region's share of all plants was significantly higher during the five years 1960-64 than it was during the preceding four years or the last three years in the series. The fact that 1964 shows up as a high year may be misleading. It will be recalled that the 1964 list included some plants which had simply shifted to a new location and that the association of some of these movements with the suburbanization process would bias the tabulations in favour of the Metro Region. This could account also for the relatively high proportion of establishments of Canadian origin recorded for the Metro Region in 1964. The purpose of Table VIII is three-fold. Firstly, it provides a summary of the contrasts between sub-periods noted in Figure 3. More important, it is intended to illustrate the way in which variations in the ratio of foreign to domestic plants in the total number of new manufacturing establishments can affect the centralization trend, and to investigate any differences in the locational behaviour between branch plants and other plants of Canadian origin.

TABLE VIII
DISTRIBUTION OF NEW MANUFACTURING ESTABLISHMENTS IN
SOUTHERN ONTARIO, 1956-59, 1960-63, AND 1964-67^a

	1956-59	1960-63	1964-67
S. ONTARIO - ALL NEW PLANTS	618	640	672
% of Foreign Origin	37%	42%	35%
METRO REGION-% OF S. ONTARIO			
All plants	38	49	39
Plants of Foreign origin	52	58	50
Plants of Canadian origin: ^b			
(a) All plants	30	42	34
(b) New firms	32	42	
(c) Branch plants	28	39	

^a Compiled from lists of new manufacturing establishments published annually by the Ontario Department of Trade and Development (formerly the Department of Economics and Development) in the *Ontario Industrial Review*.

^b Plants of Canadian origin are defined to include branch plants owned or controlled by foreign interests in those cases where a parent manufacturing establishment has already been located in Canada. Prior to 1965 plants of Canadian origin were divided into two categories, new firms and branch plants, in accordance with their origin relative to the Province of Ontario. In this case, "branch plant" referred only to new subsidiaries of firms with a parent operation in Ontario. Of the 387 new establishments of Canadian origin listed for Southern Ontario during the four-year period 1956-59, 230 were included in the tabulations of new firms and 157 (41 per cent) in the separate lists for branch plants. The corresponding numbers for the 1960-63 period were 370 establishments of Canadian origin, including 281 new firms and 89 branch plants (24 per cent).

In part, the upward swing in the proportion of new plants attracted to the Metro Region during the 1960-63 interval was a general one, affecting its share of the establishments of both foreign and domestic origin. At the same time, the upswing can also be traced in part to an increase in the relative importance of foreign plants in the total number of new manufacturing establishments beginning operations in Southern Ontario. Plants of American and overseas origin, the types which have shown a marked locational preference for the Metro Region, accounted for 42 per cent of the new plants established in Southern Ontario during the 1960-63 period in contrast to only 37 and 35 per cent during the other two intervals.

The second factor which required investigation in Table VIII was the locational behaviour of branch plants of companies already established in an Ontario location, and the extent to which variations in the ratio of branch plants to new firms might affect the observed location pattern of plants of Canadian origin. It might be logical to hypothesize that a smaller proportion of the branch plants would be likely to locate in the Metro Region. If parent plants tended to be concentrated in this area, new branches might be oriented to markets in other subregions of the province. Alternatively, it could be argued that industrial linkages would lead branch plants to seek a location in close proximity to the parent operation. Since branch plants have not been identified in the annual lists since 1964, the analysis of this factor is based on the first two sub-periods. Although the figures in Table VIII indicate that a slightly smaller share of the branch plants than the new firms of Canadian origin chose a location within the Metro Region during both the 1956-59 and 1960-63 periods, the difference can hardly be regarded as significant. The locational behaviour of both stands in marked contrast to that of the plants of foreign origin.

A number of significant inferences may be drawn from the preceding analysis. Avenues for further research beyond the scope of the present study are also suggested. Firstly, it would seem that the trend towards a further concentration of manufacturing activity in the Metro Region during the postwar period must be attributed to the magnetic pull of the metropolitan area on plants of foreign origin, and that the strength and direction of the centralization trend can be affected by changes in the relative importance of new plants of foreign and domestic origin in total industrial growth. That the Metro Region should attract a larger share of the foreign plants is logical in the sense that the locational pattern of new plants of Canadian and, more specifically, Ontario origin will be conditioned to some extent by the distribution of potential entrepreneurs. Since at least some entrepreneurs, for personal reasons, will not seriously consider a location beyond their own home town, new plants of domestic origin are likely to conform more closely in distribution to the existing pattern of population than will plants of foreign origin. This reasoning, however, would apply particularly to small owner-operated types of establishments, many of which would be excluded on the grounds of size from the provincial list of new plants. Over the 12-year period the Metro Region attracted only 35 per cent of the new plants of Canadian origin recorded for Southern Ontario in the provincial lists. Not only is this lower than its share of the existing manufacturing activity, it is also less than its share of Southern Ontario's population, which had risen to 40 per cent by 1966, and substantially below its share of the urban population which had increased to 47 per cent. It must be concluded that new plants of domestic origin, at least in the size categories covered in the provincial list of new establishments, have shown little reluctance to seek locations outside the

Metro Region. Relative to the existing pattern of population and manufacturing activity, they have in fact shown a moderate preference for such sites. In contrast, foreign firms, less familiar with the region, have gravitated strongly to the metropolitan centre.

To some extent the difference in the locational behaviour of plants of foreign and domestic origin may be due to differences in industrial structure, or the type of manufacturing in which such firms are engaged. In other words, plants of foreign origin may be concentrated to a larger extent in those types of industries which benefit most from a metropolitan location. There is a possibility also that new foreign plants may be smaller on the average than new plants of domestic origin. The peculiar attraction of the metropolitan area for establishments in the smaller size categories has already been noted. Both of these possibilities invite further investigation.¹⁰

It seems reasonable to conclude, however, that a significant difference would still be noted in the locational behaviour of foreign and domestic firms, even if variables such as those noted above could be held constant. One factor contributing to the difference could be the greater ease of communication, particularly air communication, between branches located in the Metropolitan Toronto area and foreign parent companies. More important, perhaps, would be the purely psychological attraction exerted by the primary metropolitan centre, the proven focus of successful manufacturing activity and a city known at least in name to the prospective foreign entrepreneur. Less familiar with the region as a whole than his domestic counterpart, he would undoubtedly be less inclined to venture further afield.¹¹

To the extent that decentralization of manufacturing might be accepted as a desirable goal towards which public policy should be oriented, the foregoing suggests that new plants of domestic origin might be the easiest to divert away from Metropolitan

¹⁰ Since the list of new establishments in the *Ontario Industrial Review* includes a description of the major products of each firm, any differences in the type of manufacturing between plants of foreign origin and those of Canadian origin, and between plants locating in the Metro Region and those locating elsewhere in Ontario, could be measured. It would not be possible to evaluate differences in the average size of plant on the basis of published data. However, the Department of Trade and Development does obtain data annually on the employment of individual manufacturing establishments from most Ontario municipalities. Data from municipalities not covered in this survey, most notably Metropolitan Toronto, could be obtained from the municipalities themselves. In a few instances individual firms might have to be contacted. *Current* employment could be compiled for all establishments which have appeared in the new plant lists over the past five years and averages calculated for plants of foreign and domestic origin, as well as for those which have located in the Metro Region and elsewhere in Southern Ontario. Employment data for individual establishments are of course also tabulated on the confidential worksheets of the Census of Manufactures. If they were aggregated in the manner suggested above, the information could probably be released for publication.

¹¹ Kerr and Spelt have suggested several other factors which may contribute to the concentration of foreign plants in Toronto. In those cases where the Canadian operation of a foreign firm begins as a sales office, the metropolitan location is a logical choice. At a later date a decision may be made to begin manufacturing in Canada and the sales office will be changed into a small manufacturing plant. There will be a natural tendency for the location to remain fixed, if not at the initial site of the sales office, at least within the metropolitan centre or its immediate environs. Banks may also influence the locational decision in that many inquiries regarding a Canadian location come through their foreign service branches in Toronto or Montreal. To develop and hold an account, they will strongly suggest a location close to their facilities. Donald Kerr and Jacob Spelt, *The Changing Face of Toronto*, (Ottawa: The Queen's Printer, Geographical Memoir 11, 1964), pp.94-5.

Toronto and its immediate environs. However, the greatest potential in curbing the long-term trend towards concentration in the Metro Region lies with the new plants of U.S. or overseas origin. It is these firms in particular which must be made aware of the merits, or lack of disadvantages, associated with less familiar and more uncertain locations outside the metropolitan centre. If policy at the provincial level were geared to encourage such firms to locate in a few selected urban centres, the promotional scheme would have a sharper focus and would be more likely to prove successful both from a psychological standpoint and in terms of creating real agglomeration economies for the participating firms. Such a policy is not without political consequences. It would have to be recognized that an intensive promotional scheme of this sort would divert some new industry away from other secondary urban centres which are actively seeking new manufacturing establishments as well as from the increasingly congested Metro Region.

Changes in the Distribution of Manufacturing Within the Metropolitan Region

The analysis now turns to an examination of the diffusion process or the spread of manufacturing growth outwards from the central city to the suburbs and towns on the immediate fringe of the metropolitan centre. The process has been treated in general terms in preceding sections of the chapter in which changes in York County were compared with those in the remaining three counties of the Metro Region. Several data problems are encountered in attempting to measure these trends on a more detailed areal basis over an extended period. Since 1961 manufacturing statistics have been published for Metropolitan Toronto and some of its subregions, employing the definition of the metropolitan area used in the 1961 Census of Population. Figures for earlier years, however, have not been recompiled to conform with this same definition and to provide a basis for evaluating growth trends for the metropolitan area as a whole or its constituent parts. In addition, the definition of the metropolitan area currently employed by the Dominion Bureau of Statistics is not necessarily the most meaningful one for analytical purposes. It includes, for example, towns such as Oakville and Milton on the western periphery, while excluding other centres such as Aurora, Whitby and Oshawa on the north and east which are located at approximately the same distance from the political or legal limits of Metropolitan Toronto. Particular reference should be made to the exclusion in the census definition of the metropolitan area of the Bramalea-Brampton industrial node on the northwestern periphery of the city. Additional problems are created by the disclosure rule which prohibits the release of data for certain municipalities.¹²

In this study, unpublished data from the 1951, 1961 and 1964 Census of Manufactures have been used to measure changes in the distribution of manufacturing within Metropolitan Toronto and its immediate periphery. Figures for 1951 have been recompiled to conform to the current political and census definitions of Metropolitan Toronto. In addition, statistics for all three years have been tabulated to provide a

¹² No information, other than the number of establishments, can be reported for any areal unit in which one establishment accounts for 75 per cent of the value of factory shipments or two establishments account together for 90 per cent or more of the total. To prevent disclosure of a confidential area as a residual, this frequently means that data for other municipalities, which are not in themselves confidential, cannot be released.

measure of the growth and distribution of manufacturing within various subareas of a Fringe Zone extending outwards for a distance of about 20 miles from the contemporary legal limits of the metropolitan centre.

In using unpublished census data for townships and urban municipalities, it has been necessary to adhere to the rules of confidentiality that would govern the publication of these statistics in D.B.S. reports. To derive totals for certain subregions of the Fringe Zone, specifically those containing Oakville on the west and Oshawa and other municipalities of Ontario County on the east, estimates have had to be made. Their derivation is briefly described in the footnotes on Table IX. It can be stated with confidence that the totals for the Fringe Zone as a whole are not subject to any significant error (apart from any which might be present in the official census statistics), but the subtotals and relative growth rates for several of its constituent subregions should be regarded as approximations. As a further check, the 1964 employment figures based on the Census of Manufactures have been compared in the Supplement to Table IX with those compiled for use in the Metropolitan Toronto and Region Transportation Study (MTARTS). The MTARTS employment figures, which also relate to the year 1964, were prepared by the Metro Planning Board for the Metro Planning Area and by the Ontario Department of Municipal Affairs for other municipalities. Based on the MTARTS data, employment in manufacturing for Metropolitan Toronto and the Fringe Zone as it has been defined in this study totalled 337,000, a figure about 13 per cent higher than the 298,000 derived from the Census of Manufactures. That there should be a difference of this magnitude is not surprising in view of the problems in defining what constitutes a manufacturing establishment and in distinguishing between average employment over a twelve-month period and number of employees during a specific survey week. The relative magnitude of the discrepancy between the two sets of figures is almost identical for Metropolitan Toronto and the Fringe Zone as a whole, but the differences are less consistent for individual subregions of the Fringe. The MTARTS figures and other evidence suggest that the 1961 & 1964 estimates for the Ajax-Pickering Township area (inner fringe) on the east may be too high. If a downward adjustment is warranted, however, it would not likely involve more than 500 employees.

In Table IX, the Fringe Zone has been divided into three sectors, northern (York County), western (Peel & Halton Counties) and eastern (Ontario County). Each of these sectors has been broken down in turn into an inner and outer fringe, the inner belt encompassing the zone within about 10 miles of the legal limits of Metropolitan Toronto and the outer belt extending out an additional 10 miles. A list of the municipalities included within each of the subregions can be found in the Supplement to the table. They are also shown on Map 2. In general, the inner fringe could be described as encompassing Mississauga and the Brampton-Bramalea area on the west, the area up to Richmond Hill on the north, and the area out to Ajax on the east. The outer fringe extends to Oakville, Milton and Georgetown on the west, Newmarket on the north, and Oshawa on the east.

In Table IX, employment has been used as the criterion for measuring changes in the distribution of manufacturing within the Metro Region. For comparative purposes the percentage distribution of manufacturing activity based on number of establishments and value added has been included for 1964. As might be expected, the City of

TABLE IX
GROWTH AND DISTRIBUTION OF MANUFACTURING IN
THE FOUR-COUNTY METRO REGION

	Manufacturing Employment ('000)				% of 4-County		% of 4-County Total		Value Added 1964
	1951	1961	1964	Increase 1951-64	Increase 1951-64	4-County Increase	Employment 1951-1964	Establishments 1964	
METROPOLITAN TORONTO	195.5	213.1	235.2	39.7		52.9	85.4	77.4	72.4
(a) Toronto City	151.3	114.3	107.2	-44.1			66.1	35.3	32.0
(b) Other Metro Municipalities	44.2	98.8	128.0	83.8			19.3	42.1	40.4
FRINGE ZONE	30.8	47.0	62.7	31.9		42.4	13.5	20.6	25.9
(a) Northern Sector				4.0		5.3	.8	1.9	2.0
Inner	.3	1.8	3.1	2.8		3.7	.1	1.0	1.0
Outer	1.6	2.6	2.8	1.2		1.6	.7	.9	1.0
(b) Western Sector				18.1		24.1	6.1	10.5	14.2
Inner	10.5	13.8	19.5	9.0		12.0	4.6	6.4	7.4
Outer	3.4	8.6*	12.5*	9.1		12.1	1.5	4.1	6.8
(c) Eastern Sector				9.8		13.0	6.6	8.2	9.7
Inner	.9	2.5*	2.8*	1.9		2.5	.4	.9	.8
Outer	14.1*	17.7*	22.0*	7.9		10.5	6.2	7.3	8.9
OTHER AREAS	2.6*	5.0*	6.1*	3.5		4.7	1.1	2.0	1.7
FOUR-COUNTY TOTAL	228.9	265.1	304.0	75.1		100%	100%	100%	100%
METRO TORONTO and FRINGE ZONE	226.3	260.1	297.9	71.6		95.3	98.9	98.0	98.3
METRO CENSUS AREA	208.2	235.4	263.3	55.1		73.4	91.0	86.6	84.8

* Estimate (see explanatory footnote).

FOOTNOTES TO TABLE IX

Areal Units. A list of the municipalities included in each of the subregions of the *Fringe Zone* can be found in the Supplement to Table VIII which follows these footnotes. The category *Other Areas* refers to those parts of the four counties which lie outside the Fringe Zone. The *Metro Census Area* includes: Metropolitan Toronto; all parts of the inner fringe except Brampton and Chinguacousy Township; and Oakville (including the former Trafalgar Township) and Milton which constitute part of the outer fringe in the western sector.

Data Sources. The totals for the various subregions have been compiled from unpublished data from the Census of Manufactures for 1951, 1961, and 1964. At the time this research was undertaken, 1964 statistics had been published only for counties and metropolitan areas. The 1961 employment figures used in this study are based on the new "total activity" concept and differ slightly from those which were included in the published D.B.S. reports on *The Manufacturing Industries of Canada* for that year. In the case of 1951, it was necessary to aggregate unpublished data for municipalities to derive totals not only for subregions of the Fringe Zone, but also for Metropolitan Toronto in terms of both its political and census area definitions.

Data Estimates. Due to the disclosure rule it has been necessary to estimate employment and value added for certain subregions. Estimates have been denoted by an asterisk following the employment figures, but for 1964 they apply also to the corresponding value added percentages. In 1951 the only confidential municipality of any significance within the Fringe Zone was Oshawa. Confidential areas in 1961 included Oshawa, Whitby and Whitby Township, Pickering and Pickering Township, Port Credit, Malton, Chinguacousy Township, and Oakville. In 1964 confidential areas for which data will not be published include all municipalities within Ontario County and Oakville.

Working from the data which have been or will be published, it is possible to derive close estimates of manufacturing activity in those subregions which include municipalities on the confidential list. In 1961, for example, figures for the subdivisions of the Metropolitan Toronto census area which have been published can be subtracted from the Metro total to obtain a collective residual for the confidential areas. Since Metropolitan Hamilton is defined to include all of Wentworth County plus the Burlington portion of Halton County, the Wentworth and Metro Hamilton Statistics can be used to determine a value for the eastern part of Burlington. Once this is done, figures for Burlington and other non-confidential areas can be subtracted from the Halton County total to obtain a very close estimate for Oakville. Similarly, the portion of the Metro Toronto residual falling within Peel County can be determined by subtracting non-confidential areas from the county total. The remainder of the Metro residue can then be assigned to the municipalities of Ontario County for which data have not been reported and which fall within the Metro census area (Pickering and Pickering Township in 1961). The analysis of residuals can subsequently be applied to Ontario County to derive an estimate for the outer fringe of the eastern sector consisting of the Oshawa-Whitby area. Information relating to the number of establishments in each municipality and employment statistics published in Industrial Directories have also proved of some value in the estimation procedure.

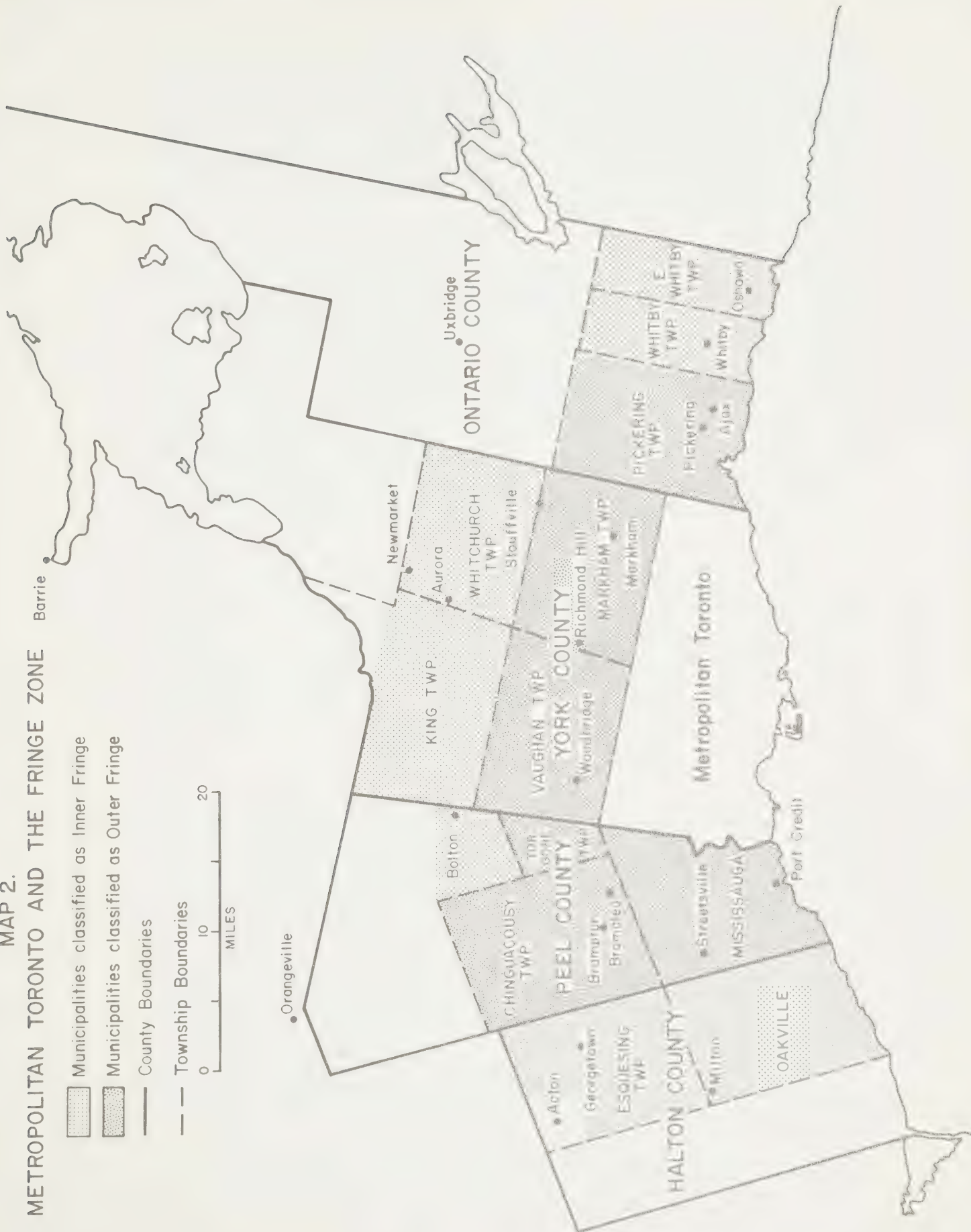
SUPPLEMENT TO TABLE IX

The table below includes a list of the municipalities comprising each of the subregions of the Fringe Zone, together with their 1964 manufacturing employment derived from the Census of Manufactures. For comparative purposes employment totals used in the Metropolitan Toronto and Region Transportation Study (MTARTS) are also given. Since the MTARTS figures, compiled by the Metro Planning Board and the Ontario Department of Municipal Affairs, substantially exceeded the D.B.S. census figures for each of the counties in the Metro Region, they have not been used in estimating employment for individual municipalities in Ontario and Halton Counties which are classified as confidential in the Census of Manufactures.

1964 MANUFACTURING EMPLOYMENT

	Census Manufactures	MTARTS
METROPOLITAN TORONTO	235,197	265,023
FRINGE ZONE	62,765	72,396
(a) NORTHERN SECTOR (York County)		
INNER	<u>3,120</u>	3,828
Markham Twp.	637	
Markham	299	
Stouffville	116	
Vaughan Twp. & Woodbridge	589	
Thornhill	87	
Richvale	579	
Richmond Hill	813	
OUTER	<u>2,823</u>	2,985
Whitchurch Twp., King Twp., & Oak Ridges	279	
Aurora	1,449	
Newmarket	1,095	
(b) WESTERN SECTOR (Peel & Halton Counties)		
INNER	<u>19,478</u>	24,745
Mississauga (Toronto Twp. & Milton)	9,063	
Port Credit	1,786	
Streetsville	558	
Chinguacousy Twp.	2,778	
Brampton	5,293	
Toronto Gore Twp.	0	
OUTER	<u>12,534</u>	13,577
Oakville (& Trafalgar Twp.)	9,700 (estimate)	
Milton	1,091	
Georgetown	1,547	
Esquesing Twp.	134	
Bolton	62	
(c) EASTERN SECTOR (Ontario County)		
INNER	<u>2,800</u> (estimate)	2,057
Ajax, Pickering & Pickering Twp.		
OUTER	<u>22,000</u> (estimate)	25,204
Oshawa, Whitby, Whitby Twp. & Whitby E. Twp.		

MAP 2.
METROPOLITAN TORONTO AND THE FRINGE ZONE



Toronto has a substantially larger share of the establishments than its share of the employment or value added. Industry in the fringe belt tends to be more capital-intensive, with value added indices exceeding those for employment. This can be attributed in part to the relative age of the plants, but more so to the types of manufacturing dominant in each subarea. For example, the motor vehicle and petroleum refining industries concentrated in the Fringe Zone are characterized by a particularly high value added per employee, whereas the reverse is true of the clothing industry associated with the central city.

In 1964 Metropolitan Toronto, defined in terms of its political or legal boundaries, accounted for 77.4 per cent of the manufacturing employment in the four counties used to designate the Metro Region in the preceding sections of this chapter. The Fringe Zone accounted for an additional 20.6 per cent. The remaining parts of the four counties not included within the Fringe Zone, contained only two per cent of the manufacturing employment and four-fifths of this could be attributed to the eastern part of Burlington and the town of Acton in the extreme west. The Fringe Zone had a total manufacturing employment of about 63,000 in comparison with 28,000 for the peripheral areas included in the census definition of the metropolitan area. Much of the difference can be traced to the inclusion of the Oshawa-Whitby area in the eastern fringe, but other centres such as Aurora, Newmarket, Brampton, Bramalea and Georgetown also contributed to the higher value for the Fringe Zone as defined in this study.

The suburbanization process is clearly reflected in the fourth column of the table which shows the change in manufacturing employment for each subregion between 1951 and 1964. During this period the total number of employees in manufacturing in the City of Toronto dropped by about 44,000 or almost 30 per cent and a comparable decline of 32 per cent was recorded in the number of manufacturing establishments. The decline in the central core area was more than offset by an increase of 123,000 in the number employed in manufacturing in the suburban municipalities of Metropolitan Toronto (primarily North York, Etobicoke, and Scarborough) and those of the Fringe Zone.

Relative to Metropolitan Toronto as a whole, including the central city, the Fringe Zone has received a highly disproportionate share of the growth. Over 40 per cent of the net increase in manufacturing employment for the four-county Metro Region between 1951 and 1964 took place in this peripheral belt. As a result, its share of the total manufacturing employment for the four counties increased from 13.5 per cent to just over 20 per cent. At the same time it must be noted that expansion of manufacturing in the suburban municipalities of Metropolitan Toronto exceeded that in the Fringe Zone in both absolute and relative terms. It is only in the latter part of the period under review, between 1961 and 1964, that the percentage rate of growth of the fringe areas beyond the legal boundaries of Metropolitan Toronto began to exceed slightly that of the Metro municipalities, exclusive of the City of Toronto. The contrast in relative growth rates for the Fringe Zone and the suburbs of Metropolitan Toronto between the 1951-1961 and 1961-1964 periods provides ample evidence of a continuing outward shift in the growth wave.

The tendency for manufacturing to expand more rapidly in a westerly direction from the city centre than to the east has been noted in previous studies. Within the political boundaries of Metropolitan Toronto 68 per cent of the manufacturing activity is located west of the Yonge St. axis.¹³ Although the concentration is slightly more pronounced within the City of Toronto itself, where 73 per cent of the manufacturing is west of Yonge St., than for the remaining municipalities where the proportion, collectively, is 64 per cent, the contemporary trends in suburban industrial expansion continue to favour the west. A marked contrast can be seen in the manufacturing development which has taken place along the western and eastern sectors of the Highway 401 corridor in the north. The growth of manufacturing in Etobicoke Township has also exceeded, at least moderately, that of Scarborough Township. Between 1951 and 1964 manufacturing employment, as recorded in the Census of Manufactures, increased from about 1,500 to over 28,000 in Etobicoke; the corresponding growth in Scarborough was from about 800 to just over 20,000. A comparison of the percentage shares and relative growth of manufacturing in the three sectors of the Fringe Zone provides further confirmation of this trend. For the inner fringe, the area to the west of Yonge St. in York and Peel Counties contained at least 80 per cent of the manufacturing activity in 1964 and had accounted for a roughly comparable share of the manufacturing growth in the belt during the 1951-64 period. In the outer fringe, the Oshawa-Whitby industrial node continues to overshadow that of the Oakville area, but the gap has narrowed considerably over the past fifteen years. The relatively low concentration of manufacturing in the northern sector of the Fringe Zone is undoubtedly related in part to the historic east-west expansion of the conurbation parallel to the lake. At the same time it is also a reflection of the rather arbitrary legal boundaries imposed on Metropolitan Toronto by adherence to county lines; this in turn has determined the municipalities classified as belonging to the fringe. County boundaries have not placed the same restrictions on the areas which could be included within the political limits of Metropolitan Toronto on the north as they have on the west and the east.

Growth of Manufacturing in the Toronto Hinterland

There remains the problem of evaluating trends in the expansion of manufacturing activity in the broader hinterland zone surrounding Metropolitan Toronto in relation to that of the metropolitan centre and its immediate fringe on the one hand and the remainder of Southern Ontario on the other. To what extent, it might be asked, has industrial development in towns within about one hour's travelling time of the metropolitan area been accelerated by relative proximity to the conurbation of the Toronto area?

In Table X, changes in the number of manufacturing workers in the six counties encircling the four-county Metro Region have been compared with those in the Metro Region and the remainder of Southern Ontario for the eleven years 1950-61 and the more recent, but shorter, 1961-65 period.¹⁴ It is only during the pre-1961 period that

¹³ This figure has been derived by summing the number of workers in manufacturing by census tract in the tabulations provided by the Metro Planning Board for use in the MTARTS project.

¹⁴ The year 1961 was selected as a break point since it was in this year that employment began to be measured on the basis of the "total activity" concept. It is doubtful, however, that the change in concept would significantly distort a comparison of growth rates in different areas (See footnote 6 on p.7).

substantial contrasts can be discerned in the growth rates. Analysis in a preceding section of this chapter revealed that a continuation of the more rapid growth in the Metro Region during the first few years of the 1960's was followed by a slackening off in 1964 and 1965. The net effect of this for the 1961-65 interval was a rate of industrial expansion almost identical to that of the remainder of Southern Ontario. Until more data become available, it is impossible to determine whether the slower growth of the Metro area noted at the end of the period continued in subsequent years. What the 1961-65 figures do appear to reveal is a tendency towards more uniform growth rates in all areas and not just between the Metro Region and the remainder of Southern Ontario viewed in the aggregate.

TABLE X
MANUFACTURING TRENDS IN THE TORONTO HINTERLAND

	Manufacturing Employees ('000)			% Increase		% of S. Ont Mfg. Employment		% of New Plants
	1950	1961	1965	1950-61	1961-65	1950	1965	1964-67
METRO REGION	215.7	265.1	322.2	23	22	40.6	45.8	39.4
York	189.8	217.6	252.2	15	16	35.7	35.9	26.0
Ontario, Peel & Halton	25.9	47.5	70.0	76	47	4.9	9.9	13.4
REST OF S. ONTARIO	315.7	309.6	380.8	-2	23	59.4	54.2	60.6
Wentworth	56.8	53.5	65.5	-6	22	10.7	9.3	5.1
Waterloo	30.3	32.4	41.7	7	29	5.7	5.9	5.8
Wellington	8.1	9.3	11.2	14	21	1.5	1.6	1.3
Dufferin	.24	.26	.71	6	173	.05	.1	.3
Simcoe	5.7	8.4	10.6	47	27	1.1	1.5	3.9
Durham	2.5	2.4	2.7	-4	13	.5	.4	.7
All other Counties	212.1	203.5	248.4	-4	22	39.9	35.3	43.5

Focusing attention now on the ring of counties encircling the Metro Region, it can be seen that Metropolitan Hamilton represented by Wentworth County, lost ground like most other parts of Southern Ontario to the Metro Toronto Region during the 1950's. The slower growth of the Hamilton area during this period would be only slightly less pronounced if the eastern part of Burlington were included with Wentworth rather than with Halton County. The primary reason for including Wentworth County in the table is to demonstrate that the centralization trend during the post-1950 period would be somewhat less pronounced if the four-county Metropolitan Toronto Region were broadened to include Hamilton. Over the more extended 1932-65 period, analysed in a previous section, the effect of including Wentworth County would be less significant, since part of the relative loss registered by the Hamilton area during the 1950's was offset by an increase during the earlier period.

The hinterland belt to the east of the Metro Region, represented by Durham County, has gained not at all through relative proximity to Toronto. It is only in the four counties to the north and west that growth appears to have been accelerated. And in

one of these, Dufferin County, manufacturing activity is still on such an inconsequential scale that percentage growth rates have little meaning. Orangeville, in which almost all of the manufacturing of Dufferin County has centred, has unquestionably derived some benefit from its location relative to Toronto, but it lacks both the major highway arteries (401 and 400) which link Waterloo, Wellington and Simcoe Counties with Toronto and the recreational benefits associated with Lake Simcoe and the Georgian Bay shoreline in Simcoe County. Over the 1950-65 period as a whole, both Wellington and Waterloo Counties have fared better than most other parts of Southern Ontario, with Waterloo showing the faster growth rate in the more recent period. It is Simcoe County, however, that tends to stand out as the region with a consistently high growth rate. During both the 1950-61 and 1961-65 periods its rate of industrial growth exceeded significantly that of the Metro Region as a whole, although it failed to match the percentage increases in the fringe counties of Ontario, Peel, and Halton which were inflated by the suburbanization process. In an absolute sense, manufacturing activity in Simcoe County still lags far behind the established concentration in the Metropolitan Kitchener and Guelph areas, but the number employed in manufacturing in Simcoe increased from 15 per cent of the combined total for Waterloo and Wellington Counties in 1950 to 20 per cent in 1965.

Since the Metropolitan Kitchener census area accounts for about three-quarters of the manufacturing in Waterloo County and the city of Guelph for at least as high a share of the total for Wellington County, the county trends largely reflect the growth which has taken place in these two centres. In Simcoe County manufacturing is more dispersed. In 1964, four towns, Barrie (2,924 manufacturing employees), Orillia (2,325), Midland (1,876), and Collingwood (1,657) collectively shared about nine-tenths of the county's industry. In 1951, Barrie was the least important of the four industrial nodes, with only 900 manufacturing employees, in contrast to 2,200 for Orillia and over 1,100 for both Midland and Collingwood. The remaining 15 per cent of the manufacturing workers in Simcoe County in 1951 can be traced to other urban centres and rural areas and cannot be attributed to areas subsequently annexed by the City of Barrie. The remarkable growth of Barrie relative to the other centres during the 1950's and early 1960's can only be explained by its greater proximity to Toronto and substantially improved access resulting from the construction of Highway 400, reinforced perhaps by the recreational benefits associated with its location on Lake Simcoe. The industrial expansion in Barrie exceeded that in most of the smaller towns within the Fringe Zone of Metropolitan Toronto such as Ajax, Richmond Hill, Aurora, Newmarket and Georgetown. All of these towns were seeking new industry during this period, but none had increased their manufacturing employment to a level of more than one or two thousand by 1964. The major exceptions were Brampton and Oakville, which had started in 1951 with a manufacturing base little greater than that of Barrie. In the case of Oakville, however, the growth can be attributed largely to the establishment of one major plant. An interesting comparison can be made between Barrie and Alliston, which is located further to the south in Simcoe County, but west of the Highway 400 transport corridor Alliston has, of course, never rivalled Barrie as an industrial node. Its growth since the early 1950's, however, has been very comparable to that of Orangeville still further to the west, with manufacturing employment only increasing from one or two hundred in 1951 to about 400 in 1964.

One of the most interesting features of the growth pattern in Simcoe County in recent years has been an apparent decline in the role of Barrie as the dominant growth pole. Manufacturing employment figures for 1968, compiled by the municipalities themselves, suggest that the rate of industrial growth in Orillia and Midland since 1964 has been fairly comparable to that in Barrie and that Collingwood has experienced a particularly rapid increase bringing its manufacturing base up to a level equal to that of Orillia. Although there is some danger in comparing manufacturing statistics prepared by individual municipalities with those of the Census of Manufacturing, the record of new plants established in the *Ontario Industrial Review* lends further credence to the apparent trend. Of the 26 new plants listed for Simcoe County during the four-year period 1964-67, ten located in Collingwood, five in Orillia, four in Midland, and only three in Barrie. Government incentives to attract manufacturing to the Georgian Bay Region may account, at least in part, for the relative shift in growth away from Barrie. Other factors could be increasing land costs in the Barrie area and further improvements to the highway arteries connecting the more northerly centres with Toronto.

The last column of Table X includes a summary of the percentage distribution of the 672 new plants listed for Southern Ontario in the *Ontario Industrial Review* for the four years 1964-67. Although it would be a mistake to infer too much from these figures in terms of their relationship to employment trends, they do suggest that Simcoe County has continued over the past several years to experience a rate of industrial growth substantially greater than that of most other areas, including the Metro Region, Waterloo and Wellington Counties.

CHAPTER III

SPATIAL LINKAGES

This chapter examines spatial linkages between manufacturing establishments in the Toronto hinterland and the metropolitan centre. It seeks to evaluate the importance of these linkages in the growth of manufacturing in the peripheral belt. Spatial linkages are of two types: actual flows of both materials and finished products between the periphery and Metropolitan Toronto and communications between plants and suppliers, customers, bankers, parent firms and so on.

In the first section of the chapter, marketing patterns and sources of supply of manufacturing concerns in the peripheral zone are investigated in order to assess the strength of their interaction with, and dependence on, Toronto. This is followed by a discussion of the relative accessibility of the peripheral zone and its subregions to the metropolitan centre based on transport cost and time travel gradients. Finally, the results of the field interviews are analysed with reference to the significance which manufacturers in the peripheral zone themselves attach to the transportation cost and communication problems associated with their location.

Marketing Patterns and Sources of Supply

In the plant interviews carried out in seven towns of the study area, manufacturers were asked to provide a percentage breakdown of their sales in terms of seven market areas: 1) Local; 2) Metropolitan Toronto; 3) Other parts of Ontario; 4) Quebec and the Maritimes; 5) Western Canada; 6) United States; and 7) Overseas. On the supply side, the proportion of total materials used was obtained for only two source regions, Local and Metropolitan Toronto.

The market area of greatest significance to this study is of course that of Metropolitan Toronto. The extent to which marketing costs associated with a location in the peripheral zone would exceed those of a location within Toronto would depend on the proportion of total sales directed to the Metro Market. The Metro percentage is also needed to investigate any relationship which might exist between increasing distance from Toronto and market orientation to the city. To assess further the distance factor, a subtotal for Montreal was requested within the general market category "Quebec and the Maritimes" in order that the orientation to that city could be compared with the share of the market commanded by Toronto.

The local market was defined as the town and its immediate environs. As noted in Chapter I, highly local consumer-oriented industries such as bakeries and dairies were excluded in the interview programme since the main concern was with plants which could have selected Metropolitan Toronto as an alternative location. The local market per cent indicates the extent to which towns in various size categories can rely on their internal market potential in attracting new industries. Although it does not distinguish between sales to local retail outlets and transfers of products between manufacturing plants, it does shed some light on the significance of inter-plant linkages in the industrial growth of these centres. In the questionnaire employed in the plant

interviews information on the type of market (other manufacturing plants, wholesalers, retailers, etc.) was sought for shipments in the aggregate rather than for each of the individual market areas. Since the local market proved to be of very minor significance, failure to obtain such a breakdown for specific market areas was of no consequence.

When the type of market was analysed for all plants included in the survey, other manufacturing plants accounted, on the average, for 43 per cent of the sales, wholesalers and distributors for 28 per cent, retailers (including chains) for 17 per cent, and other market categories for 12 per cent. The final group included mining and construction companies, government agencies, public utilities, hotels, hospitals, and individual consumers. There was of course considerable variation amongst individual plants in the type of market served. Sales to other manufacturing establishments, for example, constituted the entire market for about one-quarter of the firms interviewed, while about two-fifths had no sales at all in this category. There did not seem to be any appreciable relationship between the type of market served and the size of the firm. At most there was a slight tendency for the large firms to be more oriented to the industrial market. This is illustrated in Table XI which shows the distribution of plants in various size groups in terms of the proportion of their total sales directed to other manufacturing concerns. It will be noted that the average for the plants with more than 100 employees was 47 per cent, whereas the corresponding figure for the establishments with an employment of less than 25 was only 40 per cent. This can be attributed to the fact that only about one-third of the largest firms had no market link with other manufacturing plants, while about half of the smaller firms fell into this category. However, the reverse relationship emerged at the upper end of the scale where a somewhat higher proportion of the small firms sold their products exclusively to other manufacturing concerns. Considering the limited size of the sample, the differences do not appear to be very significant.

TABLE XI

PER CENT OF TOTAL SALES DIRECTED TO OTHER MANUFACTURING PLANTS:
FREQUENCY DISTRIBUTION OF PLANTS INTERVIEWED

Size of Plant (Employees)	Total No. of Plants	Per Cent of Sales to Other Manufacturing Plants						Mean
		0	1-25	26-50	51-75	76-99	100	
1-24	21	10	2	0	2	1	6	40%
25-100	31	16	0	1	4	2	8	41%
101+	42	13	3	6	9	3	8	47%
All Plants	94	39	5	7	15	6	22	43%
% of All Plants	100%	42%	5%	7%	16%	6%	24%	

Market and supply patterns have been averaged for the manufacturing establishments interviewed in each town in two ways. The first method employs a simple average with each plant weighted equally. The second method uses a weighted average based on the size (employment) of the individual plants. Using the second method, the percentage of the total manufacturing employees producing for the Metropolitan Toronto market, or any other market area, can be determined. In the case of Bramalea, one plant (Northern Electric) accounted for a highly disproportionate share (75 per cent) of the

total employment of the 12 plants interviewed. Its markets (Bell Telephone construction sites) also varied markedly from year to year. It was decided that the weighted averages would be more meaningful if this plant were excluded in the analysis of market linkages. Several other plants interviewed in the field survey failed to provide any information on market areas and a somewhat larger number did not respond to the questions on sources of materials. The market analysis is based on the returns from 95 plants, while the analysis of sources of supply uses information provided by 85 respondents. Marketing and supply patterns would vary somewhat from year to year for many plants and the percentages reported in some cases were only rough estimates. These reservations must be borne in mind in evaluating the significance of any differences in the averages for individual towns.

Table XII shows the average market pattern of plants interviewed in each of the seven towns covered in the field survey. Statistical tests of significance have not been applied to assess whether differences in sample means could have arisen by chance or whether they reflect real differences in the average marketing patterns for all manufacturing concerns in the individual towns. Several reasons may be cited. Firstly, in Georgetown, Orangeville, Barrie, and Orillia, the survey was a comprehensive one including almost all of the plants with external markets. Secondly, it would have been difficult to apply tests of significance in any meaningful way to the weighted averages. Finally, and perhaps most important, the observed differences in the patterns between the individual towns did not turn out to be very substantial. Even if statistical tests of significance demonstrated that the probability of such differences arising through sampling was low, a more important value judgement would remain as to whether or not the differences were of sufficient magnitude to be considered "significant" in a non-probabilistic sense. In interpreting the table, it would seem sufficient simply to bear in mind the fact that the Kitchener, Guelph, and Bramalea surveys were based on a sample of firms and that some allowance should be made for this in comparing their patterns with that of the other four towns.

When the 95 plants included in the market analysis are viewed in the aggregate, the market patterns based on weighted and unweighted averages are almost identical. A few differences, however, warrant comment. Orientation to the local market, though of inconsequential magnitude, is twice as high when all plants are weighted equally as when they are weighted by size. Since the pattern is a consistent one when the figures are compared for the individual towns, it can be safely inferred that small plants tend to be more strongly oriented to the local market, including other industrial plants which use their products, than do the larger firms. If a statistical correlation was made between size of plant and orientation to the local market for the 95 individual plants it would unquestionably point to the same conclusion. Although the weighted market per cent is also lower than the unweighted one for the Metro Toronto market area, the relative magnitude of the difference is not great and the pattern is in no way consistent for the individual towns. It cannot be concluded, therefore, that smaller plants in the peripheral zone tend to have a higher proportion of their sales in the Metro area. The only market orientation, other than the local one, in which there is any evidence of a relatively consistent relationship with plant size is that of Western Canada. There would appear to be at least a modest tendency for the larger firms to effect a greater share of their sales in this more distant market area.

TABLE XII
MARKET PATTERNS OF PLANTS INTERVIEWED

	No. of Plants	UNWEIGHTED AVERAGES % of Total Market							Montreal as a % of Toronto ^a
		Local	Metro Toronto	Other Ont.	Que. & Maritimes	West Can.	U.S.A.	Overseas	
Bramalea	10	1	17	23	21	14	21	3	78
Georgetown	17	6	32	26	20	9	4	3	43
Orangeville	7	1	21	44	20	14	.1	0	42
Barrie	18	1	35	20	21	16	2	5	35
Orillia	18	1	40	24	20	10	2	3	24
Guelph	14	4	24	28	25	13	5	1	83
Kitchener	11	16	22	32	16	9	4	1	32
ALL PLANTS	95	4	29	27	20	12	5	3	42
AVERAGES WEIGHTED BY SIZE (EMPLOYMENT) OF FIRM									
Bramalea	1	1	18	24	22	21	12	2	85
Georgetown	.3	.3	28	20	28	15	5	4	79
Orangeville	.3	.3	28	32	23	16	.3	0	39
Barrie	1	1	30	19	23	19	2	6	51
Orillia	.5	.5	24	38	21	8	5	3	28
Guelph	1	1	23	43	13	15	2	3	46
Kitchener	6	6	28	27	16	14	8	1	9
ALL PLANTS	2	2	26	28	20	15	5	3	43

^a Only 86 of the 95 firms included in the market analysis provided a Montreal subtotal for the proportion of their sales in Quebec and the Maritimes. The proportion of the total market attributable to Montreal was calculated separately for the 86 firms and these percentages were then related to the Metro Toronto percentages based on 95 respondents. Of the 9 firms which did not provide a figure for Montreal, 4 were located in Georgetown, 2 in Orangeville, 2 in Kitchener, and 1 in Guelph.

Reference has been made above to the very minor role played by the local market in total sales. It is only in Kitchener, the largest centre, that it assumes a position of any significance. In Kitchener six of the 11 firms interviewed had 10 per cent or more of their market in the local area. In each of the other six centres there was not more than one plant which fell into this category. The six per cent unweighted average for Georgetown is misleading in that it results from a single small firm with a very high proportion of its sales in the local class. In terms of inter-industry market linkages and other local market outlets, only Kitchener has reached the size threshold where it begins to display some of the characteristics of a growth pole. Much the same pattern emerges from the information gathered on the origin of materials used in the manufacturing process, although the contrast between Kitchener and the other towns is not as pronounced. IN the unweighted averages Kitchener ranked highest with almost 14 per cent of its materials obtained from local sources. The average for all of the 85 plants which responded to this question was about seven per cent. Four of the 10 firms which answered this question in the Kitchener area obtained 10 per cent or more of their materials locally. The only other centres with more than one establishment falling into this category were Orillia (5 out of 15) and Guelph (3 out of 13).

Undoubtedly, one of the most important conclusions to be drawn from Table XII relates to the absence of any apparent relationship within the peripheral zone between distance from Toronto and relative orientation to the Metro market. Bramalea, the closest centre to Toronto, has a lower proportion of its shipments directed to the Metro market than any other town. On the other hand, Barrie and Orillia, two of the most distant centres, show the greatest orientation to the Toronto market in the averages based on an equal weighting of individual plants. In the case of Orillia, the largest plants have a much lower share of their sales in Metropolitan Toronto than do the smaller firms and the town's rank changes markedly when market areas are measured in terms of the employment which they support.

Although the assumptions of the gravity model, in which interaction is a function of distance, do not seem to apply within the study area, it is possible that spatial linkages decrease away from the metropolitan centre in steps or in a series of broad, relatively homogeneous, concentric zones. To confirm this hypothesis it would be necessary to extend the survey of market patterns to a series of towns in other parts of Southern Ontario. There is ample evidence in the table to demonstrate that distance plays a role in the market orientation of manufacturing firms in a more general sense. Montreal, for example, accounts for only about two-fifths as large a share of the market of the plants interviewed as does Toronto. And 60 to 65 per cent of the sales on the domestic or Canadian market are directed to points within Ontario. If distance were not a factor one might expect Ontario to account for a proportion of the domestic sales more comparable to its share of the nation's retail trade (37 per cent) or, at the very most, its share of Canada's manufacturing activity which serves as a market for semi-finished products (about 50 per cent). It is interesting to note also that Metropolitan Toronto accounts for almost half of the market within Ontario (48 per cent in the unweighted averages and 46 per cent in the weighted ones). Further research is clearly necessary to determine whether Toronto's share of the Ontario market or total market would be substantially lower for manufacturing establishments in Southwestern or Eastern

Ontario. Subsequent analysis will suggest that plants within the peripheral zone surrounding Toronto are significantly less reliant on the Toronto market than are those which have located within the suburbs of the city, even though the Bramalea figures do not point in this direction. It seems reasonable to speculate that a similar contrast may exist between the peripheral zone as a whole and more distant subregions of the Province.

Although differences in market orientation to Toronto within the peripheral zone do not seem to be a function of proximity to the city, the unweighted averages for Orillia and Barrie do lend credence to the hypothesis that manufacturing growth in the towns to the north of Toronto has been conditioned to a greater extent by spatial linkages with the metropolitan centre than has the expansion of manufacturing in the Kitchener-Guelph area to the west. Kitchener and Guelph are oriented more strongly not only to their local markets, but also to markets in other parts of Ontario. This can undoubtedly be attributed to their greater proximity to the Hamilton-Niagara region and cities further to the southwest.

In Table XIII, linkages with Toronto as a source of materials are combined with the corresponding market indices from the preceding table to provide a measure of the total spatial linkage between manufacturing plants in the seven peripheral centres and Metropolitan Toronto. Total linkage, or dependence on Toronto, is derived by simply averaging the two percentages. As with the market patterns, there appears to be no clear relationship between proximity to Toronto and reliance on the metropolitan centre as a source of materials. The contrast between Barrie and Orillia in the northern sector and the Kitchener-Guelph area to the west, however, is even more pronounced for material supply than it was for market orientation. When all plants are weighted equally, Orillia and Barrie exhibit the strongest total linkage with Toronto and Guelph and Kitchener the weakest. When plants are weighted by size, Orangeville ranks ahead of Orillia and Barrie. The number of plants in Orangeville is still very limited and its linkage could be altered significantly by the addition of several new establishments.

More significant than the differences amongst towns in the table are the basic similarities and the overall strength of the linkage with Toronto. The weighted percentages for market orientation towards Toronto are particularly homogeneous and, apart from the contrast between the Barrie-Orillia and Kitchener-Guelph areas, the other variations are not of sufficient magnitude or consistency to warrant comment. When all plants included in the field survey are aggregated and weighted by size, the reliance on Toronto as a source of materials is somewhat less than the market orientation (16 per cent for materials and 26 per cent for markets), but there is very little difference in the unweighted averages (26 per cent for materials and 29 per cent for markets). The average total linkage with Toronto, based on both markets and sources of supply, is in the order of 25 per cent. In evaluating the relative transportation costs associated with a location in the peripheral zone, as opposed to a site within Metropolitan Toronto, it is this portion of the total shipments which would be most directly affected.

In Table XIV, the orientation to the Metro market of plants in the peripheral zone has been tabulated as a frequency distribution in order to provide some measure of the variation amongst individual plants and to emphasize further the similarities between

TABLE XIII
SPATIAL LINKAGE BETWEEN MANUFACTURING PLANTS IN
THE PERIPHERAL ZONE AND METROPOLITAN TORONTO

	Metro Market as a % of Total Market			% of Materials from Metro			Total Linkage		
	No. of Respondents	Unweighted %	Weighted %	No. of Respondents	Unweighted %	Weighted %	Unweighted %	Weighted %	
Bramalea	10	17	18	12	27	15	22	16	
Georgetown	17	32	28	15	27	11	29	20	
Orangeville	7	21	28	7	31	33	26	31	
Barrie	18	35	30	15	28	19	31	24	
Orillia	18	40	24	13	43	29	42	26	
Guelph	14	24	23	13	9	8	17	15	
Kitchener	11	22	28	10	18	9	20	19	
ALL PLANTS	95	29	26	85	26	16	28	21	

the individual towns. It will be noted that the median values for the seven centres are even more homogeneous than the mean values. All of the medians fall within the range of 20 to 30 per cent. Since the number of plants entering into the calculation of median values for each town is limited, little significance should be attached to differences of a few per cent or to the precise ranking of the centres.

TABLE XIV

METROPOLITAN TORONTO MARKET AS A PER CENT OF THE
TOTAL MARKET: FREQUENCY DISTRIBUTION OF PLANTS

	No. of Plants	Toronto Market as a Per Cent of Total Market							Unweighted Median	
		0-10	11-20	21-30	31-40	41-50	51-60	61-100	Mean %	%
Bramalea	10	4	2	2	2				17	20
Georgetown	17	4	2	3	2	3	2	1	32	30
Orangeville	7	3	1	2			1		21	20
Barrie	18	2	4	4	4		2	2	35	25
Orillia	18	4	2	5		1	2	4	40	28
Guelph	14	6	2	2	2	1	1		24	20
Kitchener	11	3	1	6	1				22	29
ALL PLANTS	95	26	14	24	11	5	8	7	29	25

Using a similar, but more generalized, type of frequency distribution, it is possible to compare the results of the market survey undertaken in this study with information on market patterns collected by D.P. Kerr and J. Spelt in an extensive survey of manufacturing in the Toronto suburbs carried out in 1957. The questionnaire employed in the latter study was concerned only with the Metropolitan Toronto market and classified plants in terms of three general categories. The first group included plants for which not more than half of the market lay within Metro Toronto. In the second and third categories the Metro market accounted for 51-75 per cent and 76-100 per cent of the total sales, respectively. Although a further breakdown within the first group would be useful, the classification scheme is sufficient to demonstrate that a striking contrast in market orientation exists between the plants interviewed in the suburbs in 1957 and those which were surveyed in towns of the peripheral zone in 1967. This is particularly true when plants are treated on an equal basis and no attempt is made to estimate the share of the total employment which the Metro market supports. In Table XV the two sets of data are compared using the classification employed in the 1957 study. The percentage distributions have been calculated separately for small plants employing less than 25 persons and for those with 25 or more workers.

TABLE XV
COMPARATIVE ORIENTATION TO THE METROPOLITAN TORONTO MARKET
OF PLANTS LOCATED IN PERIPHERAL TOWNS AND
PLANTS LOCATED IN THE METRO SUBURBS

Location of Plants	Size of Category (Employees)	No. of Plants	Per Cent of Plants in Each Market Category		
			Metro Market 0-50%	Metro Market 51-75%	Metro Market 76-100%
METRO SUBURBS (1957 Survey)	1-24	83	30	30	40
	25+	99	61	21	18
	All Plants	182	47	25	28
PERIPHERAL ZONE	1-24	22	82	5	13
	25+	73	85	12	3
	All Plants	95	84	11	5

In the Metro suburbs, 53 per cent of the 182 plants visited had more than half of their total market in Metropolitan Toronto. In the peripheral zone only 16 per cent of the manufacturing firms fall into this category. In the Metro suburbs, moreover, there were as many plants in the 76-100 per cent market category as in the 51-75 per cent class, while in the peripheral towns the number continued to decline between the second and third groups. A strong relationship can be seen between size of plant and orientation to the Metro market in the suburban survey. Seventy per cent of the small plants had over half of their sales in Metropolitan Toronto, in contrast to only 39 per cent for the firms with 25 or more employees. Even the larger plants, however, showed a much stronger orientation to the Metro market than did firms in the peripheral zone. The greater dependence of small plants on the Metro market may be likened to the similar orientation of small plants in the peripheral towns to the local market which emerged in the analysis of Table XII.

In the discussion of Table XII, the question was raised as to whether small plants in the peripheral zone might also depend on the Metro market to a slightly greater extent than the larger firms, since the proportion of sales directed to Toronto was a little lower when the average was weighted by size of firm. However, there was no consistency in the relationship amongst the individual towns and it was concluded that an inference of this sort would be unwarranted. Much the same conclusion might be drawn from Table XV. In the peripheral zone an almost identical proportion of plants in the two size classes have less than half of their market in Toronto. Although the smaller plants show a greater percentage concentration in the 76-100 per cent market category, the number of plants in this class in absolute terms is too limited to attach much significance to the difference.

It will be recalled from Table XII that Metropolitan Toronto accounted for 29 per cent of the market of the plants surveyed in the peripheral zone when all plants were weighted equally and 26 per cent when employment was used as a weight in calculating the average. In the Metro suburbs the median value is just over 50 per cent. The unweighted mean value would clearly be of the same general magnitude or about 75

per cent higher than that of the peripheral towns. The weighted mean for the suburban plants, or share of the total employment supported by the Metro market, would be considerably lower. D.P. Kerr and J. Spelt calculated that the firms with over half of their market in the metropolitan centre accounted for only 26 per cent of the total employment of the plants surveyed in the suburbs. From this it can be estimated, very roughly, that the weighted mean would be about 35 per cent in contrast to 26 per cent for the peripheral zone.¹ Thus, the sharp contrast in the orientation to the Metro market between plants in the peripheral zone and those which have chosen a location in the Metro suburbs can be attributed, at least in part, to the large number of small manufacturing concerns in the metropolitan centre and the tendency for such firms to rely much more heavily on the local market. The concentration of small manufacturing plants in Metropolitan Toronto was discussed in the analysis of growth trends in the preceding chapter.

There remains, however, a significant difference even in the weighted mean estimated for the Metro plants and the corresponding figure for manufacturing firms of the peripheral zone; and the frequency distributions for plants with 25 or more employees also differ markedly between the two areas. It is very unlikely that marketing patterns of plants in the suburbs would have changed much since 1957. However, a follow-up survey would prove very useful, particularly in view of the rather anomalous pattern observed for Bramalea. The Bramalea sample contained only one plant with as few as 25 employees, but not one of the 10 plants included in the market analysis for this centre had as much as half of its sales in Metropolitan Toronto.

From the foregoing discussion several points arise which are of relevance to the location of new plants and the growth of manufacturing in the towns of the peripheral belt.

Small firms quite logically seem to experience greater difficulty in cultivating markets outside of their own local area. Their greatest opportunity for market expansion and growth can therefore be realized if they locate in the metropolitan centre. Larger plants, with a more diverse market pattern and a smaller proportion of their sales directed to the Toronto market, are more likely to be attracted to a location outside the metropolitan centre and its immediate fringe. Even the larger plants in the Metro suburbs, however, appear to have a greater share of their market in Metropolitan Toronto than do their counterparts in the peripheral towns. Dependence on the Toronto market has probably been a factor in determining which plants would initially locate at some distance from the city. At the same time, once they have located in the peripheral zone or at an even greater distance from Toronto, firms may experience more difficulty in penetrating and expanding sales in the Metro market due to general problems of communication or higher transportation costs.

¹ The estimate of 35 per cent for the Metro suburbs should be accepted as only a crude approximation. Since plants are almost equally distributed between the two upper market categories, it has been assumed that plants would be uniformly distributed within the 0-50 per cent market category as well. If the average market orientation is 75 per cent for plants with over half of their sales in Metro and 25 per cent for those with less than half, these shares need only be multiplied by the proportion of the total employees in the two groups (.26 and .74) and added together to determine the weighted mean or share of the total employees producing for the Metro market. The answer derived by this method is 38 per cent. However, no allowance has been made for a progressive increase in size of plant as the Metro market per cent declines *within* each of the two market classes. It would seem safer therefore, to estimate the weighted mean at 35 per cent.

In analysing the market patterns of firms in the peripheral towns an attempt was made to determine whether the strength of the link with Toronto could be related to age of the plant or the type of manufacturing in which the firm was engaged. Plants were classified into three age groups: those established prior to 1945, those established during the period 1945-1959, and those established since 1959. When the seven towns were aggregated the weighted average for all three time periods fell within the narrow range of 24 to 27 per cent and the variation would be even less if Bramalea had been excluded in the calculations. Differences between time periods for individual towns were of course more substantial, but the number of plants in each town for individual age groups was too limited to draw any conclusions about trends. Plants were also divided into the twenty major groups of the standard industrial classification. In this case simple averages were calculated for each group, with no adjustment for size of plant. Only three of the groups included more than two firms. These were metal fabricating with sixteen plants, machinery with sixteen plants, and electrical products with thirteen plants. The unweighted Metro market per cent for each of the three groups again fell within a very narrow range, in this case 29 to 32 per cent, almost identical to the unweighted average of 29 per cent for all plants included in the survey. The next two largest groups, miscellaneous manufacturing with nine plants and chemicals and chemical products with eight plants, had Metro market averages of 34 per cent and 21 per cent, respectively. Percentages for some of the other groups differed rather substantially from the mean for all plants, but the number of firms in these groups was too small to attach much significance to the variations.

The focus in the field survey and the foregoing discussion was on footloose types of manufacturing which had not developed in the peripheral zone for the express purpose of serving the local consumer population. It was found that in towns such as Barrie, Orillia, Orangeville, and Georgetown, less than one per cent of the employment in such plants was supported by the local market including the market afforded by other manufacturing concerns in the area. To place this analysis in perspective, an attempt has been made to evaluate the importance of the local market in the total manufacturing base of these towns.

There were at least a few plants with external markets in the above centres which could not be included in the interview programme. In Barrie, Orillia and Georgetown the total employment in these plants was equal to about 5 to 10 per cent of the employment of the plants visited. The one firm which would not grant an interview in Orangeville had almost one-fifth as many workers as the seven plants covered in the survey. In addition there were the local industries in each town consisting mainly of bakeries, milk-processing plants, soft drink bottling plants, lumber mills, and newspapers. Firms of this type accounted for 10 or 11 per cent of the total employment in all manufacturing establishments in Orangeville, Barrie and Orillia. In Georgetown it was not possible to obtain as complete an accounting of the employment in industries of the local type, but their share of the total manufacturing employment appeared to be somewhat lower than in the other three towns. If this is the case, it can probably be attributed to the greater proximity of Georgetown to Toronto and Hamilton which would have held back the growth of local industries relative to other types of manufacturing. As much information as possible on marketing patterns was obtained for all manufacturing establishments not covered in the interview programme through direct telephone enquiries and discussions with

municipal officials. The markets of the larger local industries usually extended beyond the confines of the town itself, often to neighbouring urban centres, but they were generally limited to what might be loosely described as the local region.

The economic base concept distinguishes between basic employment serving the external market and non-basic employment supported by the internal market of the urban centre or region being studied. Applied to an urban centre, basic activity includes manufacturing or service activity oriented to the market of surrounding rural areas and neighbouring towns, as well as to more distant external markets. Used in this strict sense, it would appear that only about three to seven per cent of the manufacturing employment in the above towns could be described as non-basic in the sense that it is supported by sales within the confines of the towns themselves. If the local market is viewed more broadly and is taken to include the consumer population of nearby towns and rural areas, it could be described as supporting about 12 per cent of the employment of manufacturing establishments in Orillia and Barrie, about 10 per cent in Orangeville, and probably a somewhat smaller share of the total in Georgetown. It should be noted that not all of the employees of manufacturing concerns can be described as production or office workers associated directly with the manufacturing process. This would apply in particular to some of the local industries such as dairies and bread companies which sell directly to retailers or individual consumers.

Accessibility of Towns in the Peripheral Zone to Metropolitan Toronto

A critical variable in the foregoing discussions of the relationships between Metropolitan Toronto and the periphery is that of distance. In this section an attempt is made to define the accessibility of the peripheral zone to the metropolitan centre mainly in terms of travelling time and cost.

The simplest measure of distance is cross country or straight line. Yeates² demonstrated its usefulness in predominantly rural areas as did Ray³ in his studies of market potential over a broad surface. Within an urban area and its immediate shadow, however, time of travel by truck or automobile may be a better indication of distance than mileage. It is a fact that four-lane, controlled access highways reduce travelling time and thus increase accessibility.⁴ In Map 3, isochrones at fifteen minute intervals show relative accessibility as measured from downtown Toronto. Not unexpectedly, isochrones bend according to location of highways which provide more accessibility to those communities close by, than to those further removed. However, differences in travelling time between a well serviced town in the periphery and one with poorer road

² Yeates, M., "Hinterland Delimitation: A Distance Minimizing Approach," *Professional Geographer*, Vol. 15, No. 6, pp.7-10.

³ Ray, D.M., *Market Potential and Economic Shadow*, Research Paper No. 101, University of Chicago, Chicago, 1965, especially Chapter 3.

⁴ Exceptions do occur when accidents or road repairs may cause, within a very short period, heavy congestion. Diversions are more difficult, under such conditions, from freeways than from the more traditional two-lane highways.

connections located at approximately the same distance from Toronto are only slight. As mileage increases, differences in travelling time also increase and proximity to good roads becomes more critical.

Within the peripheral zone, most if not all communities are well linked with the city. Consequently, it is not so much travelling time which concerns firms but rather quality of service. Some towns are serviced by more frequent deliveries than others and are in a sense more accessible. Lack of competition may perpetuate slower services in small places and diminish their accessibility. Manufacturing firms which operate trucks are, of course, less restricted in a choice of location and are influenced more by travelling time than quality of service. Finally, it bears emphasis that all towns selected for study are within one and a half hours travelling time of downtown Toronto, except Orillia, which is about one and three-quarter hours.

Attempts have been made to define accessibility in terms of the cost of moving goods between centres. Thus Harris⁵ and Kerr and Spelt⁶ sought to measure distance in terms of transport rates in calculating market potential. As often stated, rates vary according to the carrier and the distance travelled. Further, rates between two large centres will normally be lower than between a large centre and a small one separated by the same mileage.

To measure accessibility between Metropolitan Toronto and towns in the peripheral zone, truck transport rates between Metropolitan Toronto⁷ and a selection of towns and cities in southern Ontario were tabulated and mapped. From this, isolines of equal transport rates were drawn.⁸

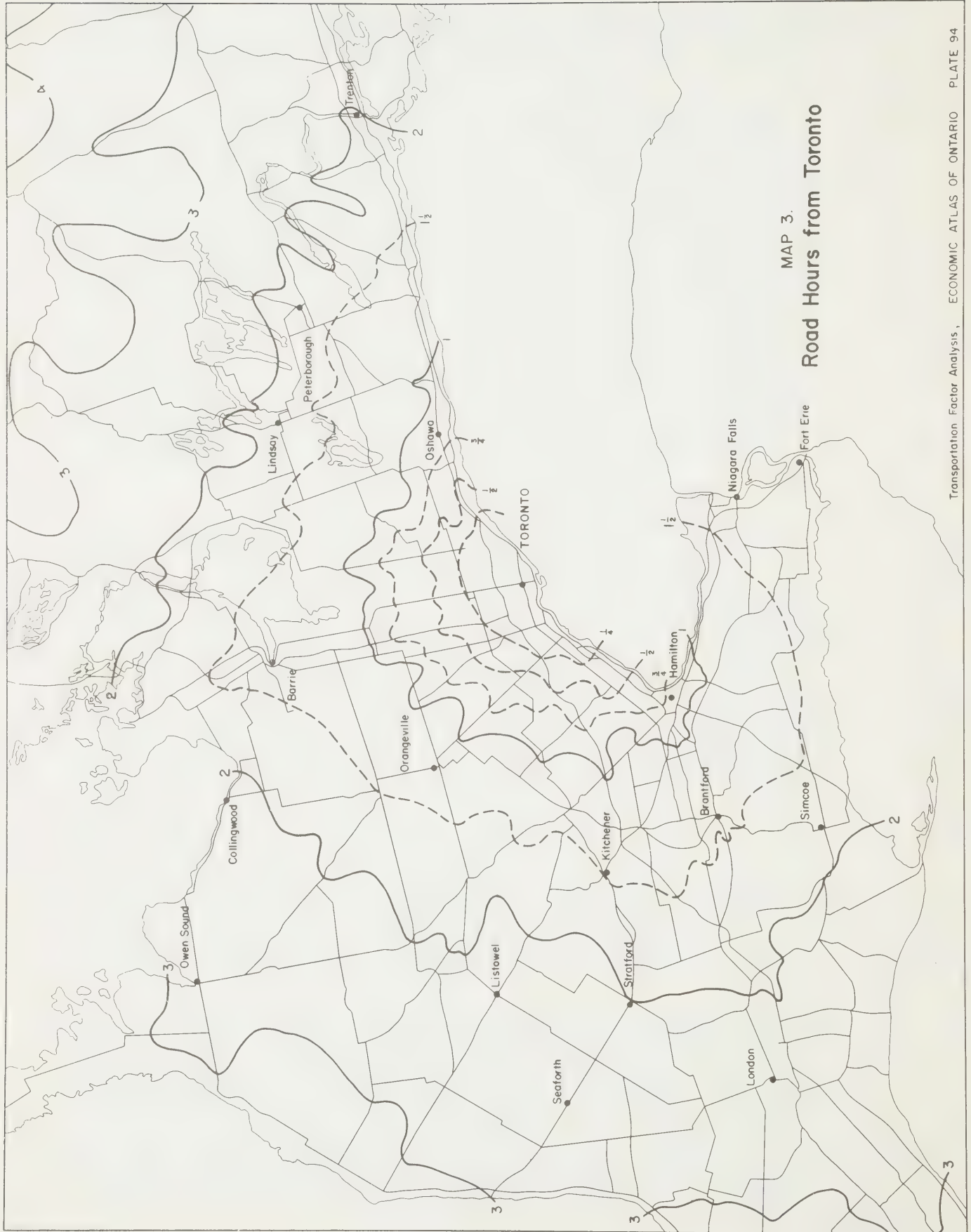
The 25 cent (per 100 lbs.) isoline extends just beyond the boundaries of Metropolitan Toronto and is concentric for the most part, with slightly greater extensions (two to three miles) to the west and east along Highway 401. The 30 cent isoline is similarly concentric reaching Bowmanville on Highway 401 which is about eight miles farther from downtown Toronto than Uxbridge on a secondary two-lane highway and consequently more inaccessible. Similar patterns are seen in the 35 cent and 40 cent isolines.

⁵ Harris, C.D., "The Market as a Factor in the Localization of Industry in the United States," *Annals of the A.A.G.*, Vol. 44, 1954, pp.315-48.

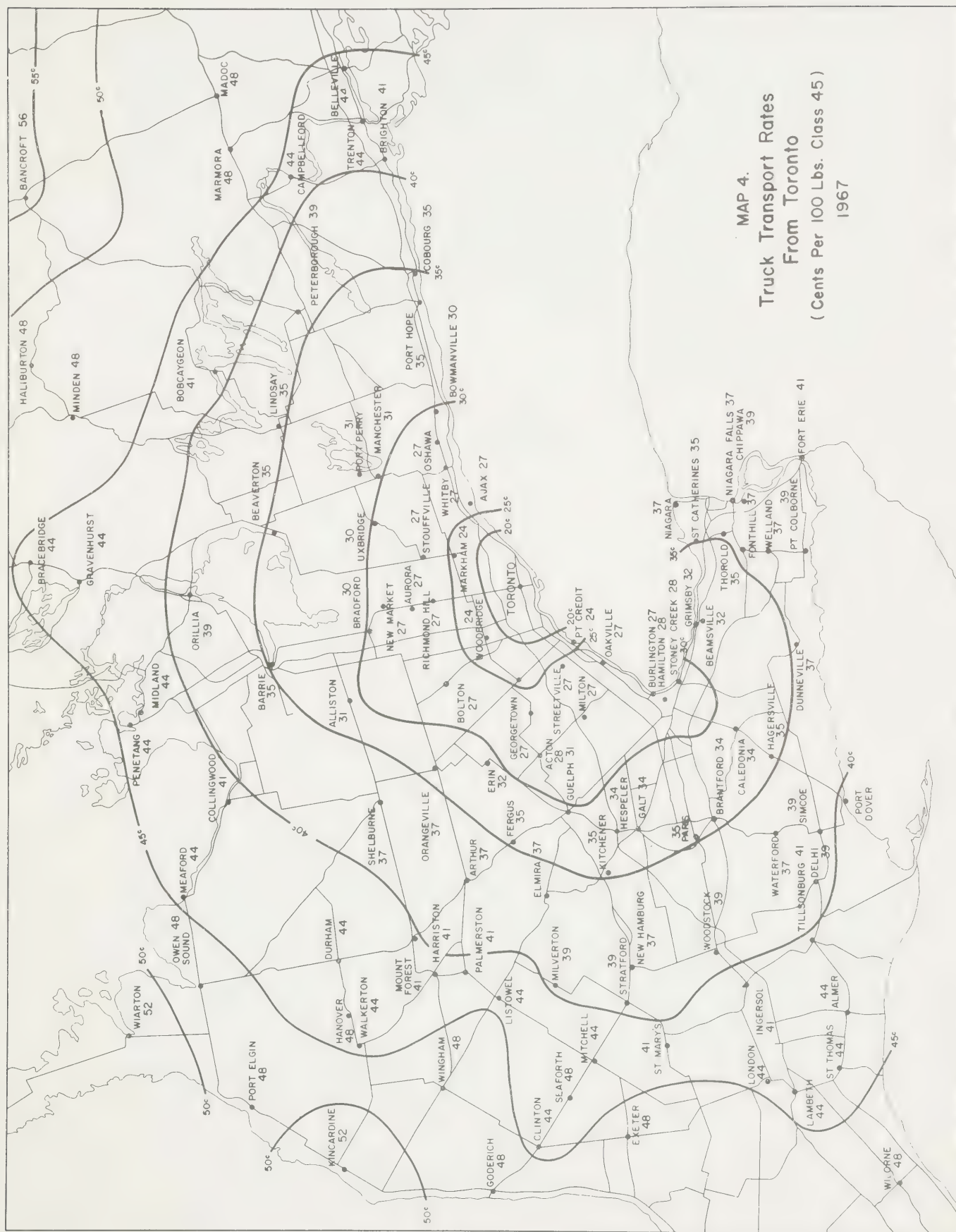
⁶ Kerr, D., and J. Spelt, "Some Aspects of Industrial Location in Southern Ontario," *Canadian Geographer*, No. 15, 1960.

⁷ Difficulties arise in attempting to describe the structure of transport rates within the metropolitan area and the peripheral zone. Viewed broadly, two types of transfer costs prevail, namely cartage and mileage. Cartage rates are quoted on an hourly basis and apply in the metropolitan area where congestion slows travel and where time for unloading and loading is high compared to that for actual delivery. Outside of the metropolitan area, weight of cargo and distance travelled are the most important cost components and transport carriers charge accordingly. The latter rates have been compiled to measure the accessibility of the periphery.

⁸ For a discussion of problems in connection with the drawing of isophors (isolines of equal transport rates) see Alexander, J.W., and Brown, E.S., and Dahlbert, R.E., "Freight Rates: Selected Aspects of Uniform and Nodal Regions," *Economic Geography*, Vol. 34, No. 1, Jan. 1958, pp.5-7.



MAP 3.
Road Hours from Toronto



Such visual impressions can be confirmed by examining Table XVI. It is indeed quite striking that regardless of direction and type of highway, (Highway 401 being a four-lane controlled access highway and Highway 10 a two-lane full access highway) rates quoted vary insignificantly according to distance. Highway 11 (see Map 4) shows slightly higher rates and Highway 10 slightly lower.

TABLE XVI
TRUCK TRANSPORT RATES IN CENTS IN 1967 TO SHIP 100 LBS.
(CLASS 45, 30,000 LBS. LOAD) FROM TORONTO ALONG
A SELECTION OF HIGHWAYS

Miles from Centre of City	Highway 10	Highway 11	401 East	401 West	Highway 7
20	24	27	27	27	27
40	28	31	29	30	29
60	34	36	34	34	34
80	37	39	37	37	36
100	42	44	44	41	43
120	45	46	45	44	46

Two general conclusions can be drawn from this brief study of distance:

- (1) within the peripheral zone, time of travel varies for the most part with linear distance, there being only minor differences from one area to another.
- (2) cost of movement of goods also varies closely with linear distance, isolines of truck transport rates being nearly concentric.

Analysis of Selected Economic and Non-Economic Factors in a Peripheral Location

The discussion thus far has pointed up interactions between Metropolitan Toronto and towns in the periphery and underlying factors of distance. It is now planned to examine responses to a selection of questions which were asked of manufacturing companies in the periphery to throw more light on the nature of the interactions and problems associated therewith. An attempt was made in preparing the questionnaire to arrange the wording of primary questions in such a way as to evoke as objective a response as possible and to insert additional questions to check on the authenticity of such primary questions. Answers were carefully examined and those which were clearly irrelevant were discarded.

Cost Variations on Assembly and Distribution

Table XVII is a tabulation of answers to the question on variations in the costs of assembling materials and shipping products. From these data it is apparent that it is the cost of marketing more than the cost of assembly which provides an additional cost of locating in the periphery. Only 45 per cent of the respondents could reduce assembly costs by locating in Metropolitan Toronto rather than in the periphery, but 57 per cent could reduce costs of distribution. These results are to be expected because Toronto represents somewhat more of a market to the periphery than a supplier of materials. The firms which could save the most by locating within Metropolitan Toronto are those which are situated to the north of the city, whereas Kitchener and Guelph firms would gain least by locating in Metropolitan Toronto. This is a result of the fact that many of the firms in this area serve the western Ontario market as well as the Toronto market, and also receive many of their materials from Hamilton and adjacent towns.

TABLE XVII
COST OF SHIPPING INPUTS AND PRODUCTS
IF LOCATED IN METROPOLITAN TORONTO

Town	Assembly Costs				Distribution Costs			
	Lower	No Difference	Higher	Proportion Lower	Lower	No Difference	Higher	Proportion Lower
Bramalea	6	5	1	.5	8	3	1	.7
Georgetown	4	13	0	.2	9	6	1	.6
Orangeville	4	2	1	.6	4	2	1	.6
Barrie	10	3	0	.8	12	4	0	.75
Orillia	9	0	2	.8	11	6	1	.6
Guelph	4	6	5	.3	5	6	3	.4
Kitchener	2	7	2	.2	5	5	1	.5
	39	36	11	.45	54	32	8	.57

Problems of Communication

A location in the periphery may be plagued by problems of communication, (see Tables XVIII and XIX). In terms of cost of telephone service, speed of delivery, personal contact and other aspects of communication, the disadvantages of the periphery are associated more with marketing than with the assembly of raw materials or with the servicing of plant equipment. The cost or inconvenience of long distance telephoning presented the most common problem in the marketing of finished goods, in particular to newer industries which had located after 1959. The maintenance of open telephone lines to Toronto is a significant cost to many firms. Slower speed of delivery and the difficulty of personal contact provided further disadvantages of the periphery in the marketing of products.

TABLE XVIII

DIFFICULTIES IN THE MARKETING OF PRODUCTS
ACCORDING TO THE NUMBER OF TIMES MENTIONED

Town	Telephone	Speed of Delivery	Personal Contact	Slow Mail	Lack of Airport
Bramalea	5	2	4		
Georgetown	4	5	1		
Orangeville	3	1	1		
Barrie	6	5	4		1
Orillia	5	1	1		
Guelph	2	1	2	1	
Kitchener	5	2	2		
	30	17	15	1	1

TABLE XIX

DIFFICULTIES IN ASSEMBLING MATERIALS AND THE
SERVICING OF PLANT EQUIPMENT ACCORDING
TO NUMBER OF TIMES MENTIONED

Town	Speed of Delivery	Servicing	Personal Contact	Larger Inventories	Telephone
Bramalea	2	1	1		
Georgetown	3	1			1
Orangeville	2	3	2		
Barrie	4	5	3	1	
Orillia	3	3	1	1	
Guelph	3	2	2		
Kitchener	1				
	18	15	9	2	1

The speed of delivery of materials was the most common disadvantage of the periphery in the assembly of supplies. Unlike firms in the metropolitan area accustomed to rapid delivery, those in outlying communities often have to wait a day or two for vital supplies. Manufacturers in some peripheral locations claim trucking companies give them a lower priority mainly because of the lack of competition. In many parts of the periphery trucking franchises are only granted to one or two firms.

The servicing and repairing of plant equipment is another common problem, occasionally resulting in the shutting down of plant production until repairs can be made. Because of this, many firms in the periphery rather than rely upon service industries from the city, have their own machine shop and maintenance men within the plant which may increase production costs.

Long distance telephone problems and the difficulty of personal contact, although mentioned by a few firms, did not appear to be a significant disadvantage in the assembly of raw materials. The reason for this is that most suppliers have salesmen who frequently visit plants.

Many firms in the periphery try to overcome these problems by establishing a sales office in the metropolitan area. It is apparent from Table XX that just over 40 per cent of the firms interviewed in the periphery, maintain sales offices in Metropolitan Toronto. Not unexpectedly, large firms have a greater representation than small. Distance from Toronto may also be a factor. Although a greater number of companies in Barrie fall into the large size category than in Orillia, a smaller proportion of the Barrie firms reported a sales office in Toronto.

Dependence of Companies in the Periphery on Transport Facilities of Metropolitan Toronto

It has been emphasized that many companies in the periphery have only weak links with Toronto in assembly of materials and sale of products. Almost all, however, are affected either directly or indirectly by the transport facilities of the metropolitan centre. The attraction of Toronto derives from one or more of the following: port facilities, piggyback facilities, bonded warehouses for truck and rail transport, extensive pool car services and the international airport.

Two illustrations may be offered. A tabulation of companies providing information on shipment of products to eastern or western Canada, the United States or overseas has been made (see Table XXI). Of the 85 companies listed, 61 or approximately 73 per cent ship products (not destined for Toronto) through Toronto. In short, almost three companies in four found the advantages of various transport facilities in Toronto very great indeed. The range from 88 per cent at Barrie to 42 per cent at Guelph may be explained by the small sample. The importance of the Toronto airport to manufacturing companies is illustrated in Table XXII. Of the 81 companies providing an answer to the question on use of the airport, 53 or about two-thirds reported a high frequency and 28 little or no use. Guelph and Kitchener companies reported a particularly high frequency of use.

TABLE XX

COMPANIES WITH SALES OFFICES IN METROPOLITAN TORONTO
ACCORDING TO SIZE AND LOCATION
(EXCLUDING BRAMALEA)

Town	Size of Plant (employees)	Yes	No	% Yes
Georgetown	1- 24	1	5	
	25-100	1	5	
	101+	4	2	
	Total	6	12	33%
Orangeville	1- 24	1	1	
	25-100	3	0	
	101+	1	1	
	Total	5	2	71%
Barrie	1- 24	1	3	
	25-100	0	3	
	101+	4	7	
	Total	5	13	28%
Orillia	1- 24	1	5	
	25-100	2	2	
	101+	5	3	
	Total	8	10	44%
Guelph	1- 24	1	2	
	25-100	2	4	
	101+	3	2	
	Total	6	8	43%
Kitchener	1- 24	2	2	
	25-100	1	2	
	101+	3	1	
	Total	6	5	55%
Total	1- 24	7	18	28%
	25-100	9	16	36%
	101+	20	16	56%
	Total	36	50	42%

TABLE XXI
FIRMS SHIPPING PRODUCTS VIA TORONTO
(NOT DESTINED TO TORONTO)

Town	No	Yes	% Yes
Bramalea	4	6	60
Georgetown	4	11	73
Orangeville	1	6	86
Barrie	2	15	88
Orillia	3	13	81
Guelph	7	5	42
Kitchener	3	5	63
	24	61	

TABLE XXII
USE OF TORONTO AIRPORT BY MANUFACTURING COMPANIES
IN PERIPHERAL TOWNS

Town	Number of Firms Responding	Frequent	Little or No Use	Is Distance from Toronto Airport a Significant Handicap?
Georgetown	16	8	8	1
Orangeville	7	4	3	0
Barrie	14	8	6	0
Orillia	18	10	8	1
Guelph	15	13	2	0
Kitchener	11	10	1	1
	81	53 (65.5%)	28 (34.5%)	3

Non-Economic Factors

In any discussion of spatial linkages non-economic as well as economic factors should be considered. Because of the subjectivity of replies to questions on amenities and consequently the general paucity of statistical data, analytical studies are difficult to make. It is understandable that most of the literature is of a general nature and has been written by journalists.⁹ It has been argued that from the point of view of social amenities in the metropolis, peripheral towns close by would be much more attractive than those more remote. On the other hand, it has been frequently emphasized that many executives prefer the life of the small town and distance from metropolis is not a critical variable. In this study the questionnaire included a selection of questions on non-economic factors, the answers to which are briefly analysed below.

To establish the intensity and pattern of non-economic spatial linkages, executives of companies in peripheral towns were asked about frequency of non-business trips to Metropolitan Toronto. It is assumed that the sample for each town (see Table XXIII) is large enough to allow for the range of behaviour of executives. Answers for every town ranged from no trips to once a week and in a few cases more than once a week. From the tabulation, two variables are suggested: distance and size of town. As would be expected in most cases, the average number of trips diminished with distance. Thus Guelph averaged fewer trips than Georgetown and Orillia fewer than Barrie. On the other hand, Kitchener recorded fewer trips than Orillia although it is closer to Toronto, and Orangeville more than Georgetown, although it is further away. Orangeville is a very small rural town with few amenities; Kitchener is part of a large urban complex (population of metropolitan area in 1966—190,000) with many amenities.

TABLE XXIII
AVERAGE ANNUAL NUMBER OF NON BUSINESS TRIPS
MADE BY EXECUTIVES FROM PERIPHERAL TOWNS
TO METROPOLITAN TORONTO

Town	Distance from Metropolitan Toronto Outer Boundary	Number of Executives Responding	Average number of non business trips to Metropolitan Toronto each year
Georgetown	23	14	25
Orangeville	35	7	44
Barrie	45	13	23
Orillia	66	19	15
Guelph	40	15	22
Kitchener	53	11	10

⁹ Typical is "Moving Executives to Small Town Plants Big Headache for U.S. Firms," reprinted from The Wall Street Journal in the *Toronto Globe and Mail*, February 25th, 1966, p.87.

One exception is D.E.C. Eversley, "Social and Psychological Factors in the Determination of Industrial Location" in Thomas Wilson, Ed., *Papers on Regional Development*, Oxford, 1965, pp.102-114.

To establish further relationships with Metropolitan Toronto representatives of companies in the periphery were asked whether a location further away from Toronto would be significantly less desirable for personal reasons. From the tabulation of answers (see Table XXIV) it may be noted that the highest positive responses came from Barrie, Orillia and Guelph, implying that relationships with Toronto are moderately strong. The smaller percentage from Kitchener may be explained by the greater size of the urban area which because of a greater range of social amenities results in a stronger local identity. The percentage answers for Georgetown and Orangeville are difficult to interpret.

TABLE XXIV

NUMBER OF AFFIRMATIVE ANSWERS TO QUESTION
THAT A LOCATION FURTHER AWAY FROM TORONTO
WOULD BE SIGNIFICANTLY LESS DESIRABLE
FOR PERSONAL REASONS

Georgetown	7 out of 14	50%
Orangeville	4 out of 7	57%
Barrie	10 out of 13	77%
Orillia	13 out of 19	68%
Guelph	11 out of 15	73%
Kitchener	3 out of 12	25%
Total	48 out of 80	60%

Finally, questions on preference for living in Toronto were asked, the answers to which have been tabulated (see Table XXV). It is assumed that such answers are indeed reliable, for unless the feeling is very strong, it is unlikely that such an admission would be made. In fact, it is much more likely that a representative of a company in a peripheral town would attempt to rationalize his location by over emphasizing the proximity of recreational facilities and exaggerating the absence of such metropolitan problems as air pollution and traffic congestion. The relatively high response in Orangeville may be explained by the lack of social amenities, but a similarly high response at Guelph is difficult to interpret. In total, only nine per cent of the executives stated that they would prefer living in Toronto, but 16 per cent thought that their wives would prefer a Toronto location.

TABLE XXV

EXECUTIVES AND WIVES OF EXECUTIVES
IN PERIPHERAL TOWNS STATING A
PREFERENCE FOR LIVING IN TORONTO

Town	Executive	Wife	Number of Respondents
Georgetown	1	2	15
Orangeville	3	2	7
Barrie	1	3	14
Orillia	0	1	18
Guelph	2	5	16
Kitchener	0	0	11
Total	7 (9%)	13 (16%)	81

CHAPTER IV

SITE FACTORS: LAND AND TAXES

In the preceding chapter, spatial linkages of manufacturing firms in the study area were examined in order to evaluate the extent to which dependence on the metropolitan centre as a market or source of materials may have affected the growth of industry in towns of the peripheral zone. The stronger the linkage with Toronto the more important to a firm is likely to be the question of accessibility to the Metro area expressed in terms of transportation costs or other communication problems. The magnitude of the transportation cost differential between a location in Metropolitan Toronto and one in the peripheral zone will depend both on the transport cost gradient extending outwards from the central city and the proportion of total shipments of the firm destined for Toronto or the share of its materials obtained therefrom. Since Toronto would represent the largest concentrated market for most firms, however, it could generally be assumed to represent the point of minimum transport costs within the region. At the same time it is in the metropolitan centre that site costs are usually the highest. Hence there is a basic substitution between transportation costs and site costs in determining the point of least cost location. As a firm moves away from a nodal centre, transportation costs are expected to increase and site costs, particularly the price of land, to decrease. In theory, a firm attempting to minimize total costs would locate at the point where the sum of transportation costs and site costs is at a minimum. This is illustrated graphically in Figure 4.

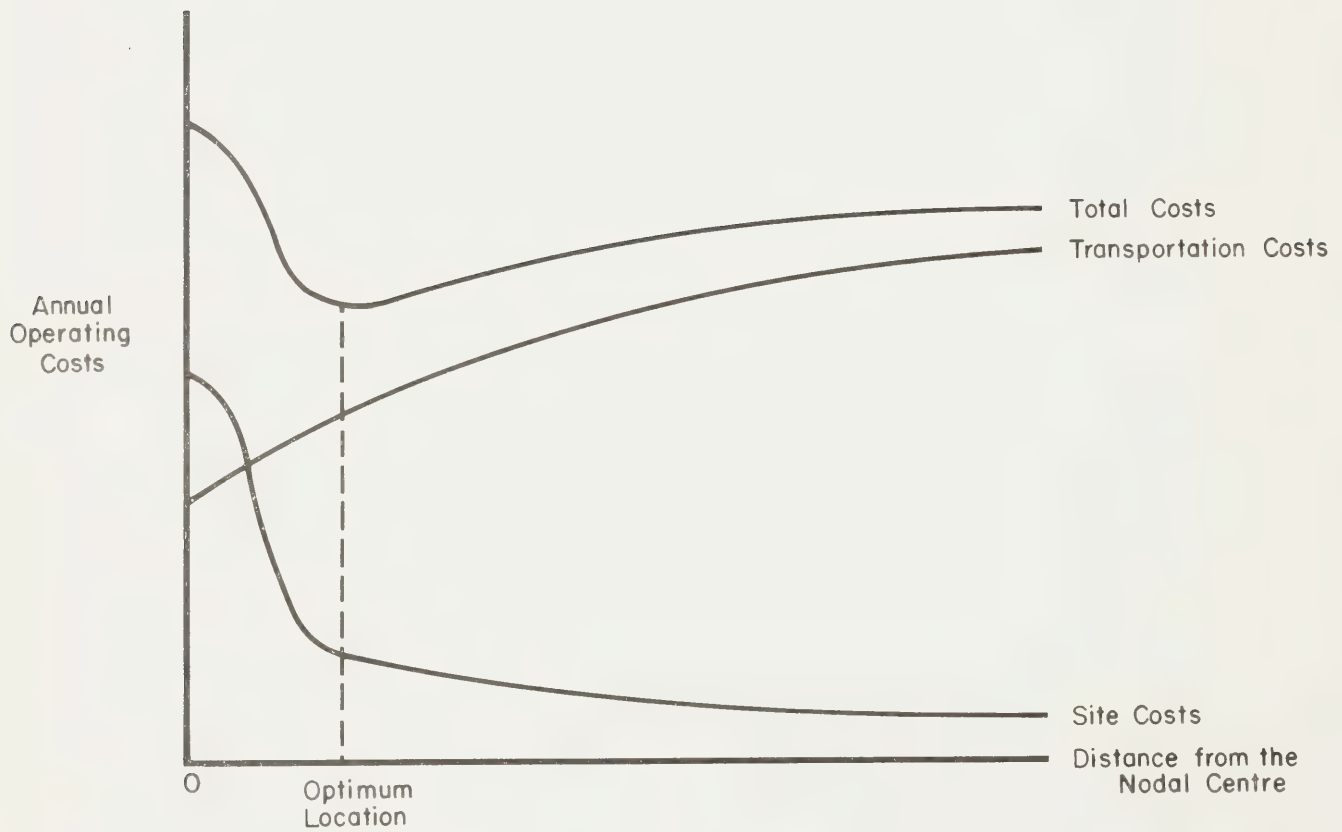
Two of the most important types of site costs, those relating to land and municipal taxes, are investigated in this chapter. The first section of the chapter deals with the industrial land market and the second with spatial variation in the taxes imposed on industrial property. An attempt is then made to compare land and taxes in terms of their potential importance as locational costs. Finally, results of the plant interviews are used to assess the role which these factors may have played in the location decisions of plants which have selected a site in the towns of the peripheral zone.

About 20 per cent of the firms interviewed in the field survey were found to be renting their premises. This included between one-quarter and one-third of the plants in Bramalea, Georgetown, Guelph and Kitchener, but almost none of the firms in Orillia, Barrie and Orangeville. In view of the small size of the sample, few conclusions could be drawn in this chapter regarding spatial differences in the cost of rent. In general, however, rent might be expected to vary in accordance with differences in the market value of land and the municipal tax burden.

Since the field survey did not cover plants located within Metropolitan Toronto, it is not known whether a significantly larger share of the manufacturing firms in the metropolitan centre would fall into the rental category than in most towns of the periphery. However, it seems likely that the growth of manufacturing in at least some centres outside Toronto has been held back by the lack of suitable buildings for rent. This would be particularly important for smaller firms lacking capital to invest in land and buildings or not wishing to invest heavily in such assets until their operation had proven itself successful. The same problem would exist for a firm wishing to purchase a

FIGURE 4

Least Cost Location Based on Transportation
and Site Costs



building readymade in order that operations could begin with a minimum of delay. It is only in a large metropolitan centre with a substantial number of potential purchasers that private developers are likely to risk constructing buildings of this type, particularly in sufficient variety to meet the requirements of most firms. Municipalities are prohibited from using public funds to construct buildings for industry.

The Industrial Land Market

Land costs have been subject to strong inflationary pressures in Metropolitan Toronto and its environs over the past decade. Speculation has played an important role in the process. It has been the increasing cost of land, as well as the shortage of new sites in the central city, which has led to the outward diffusion of manufacturing to the suburbs and points beyond. The general growth of manufacturing has been placing heavy demands on the resource of land designated for industrial use. At the same time the trend to more efficient single storey buildings and the need for larger parking and unloading areas have increased the amount of land required by the individual firm. The old multi-storey industrial buildings found in the central and congested parts of the city are now considered obsolete or inadequate for most manufacturing purposes. With the rapid rate of growth characteristic of manufacturing in recent years, and the threat of further inflation of land values, most firms also wish to set aside an area sufficient in size to allow for future expansion. It would be logical to expect land cost to increase in importance as a location factor as the general price of land and the amount required for an individual plant rises.

The analysis of the industrial land market begins with a short discussion of the supply and demand for industrial land in Metropolitan Toronto and its immediate environs. The land or site size requirements of the individual plant are then appraised. An attempt is made to define a "typical" plant in terms of both site size and building space to provide a norm for the subsequent analysis of land costs and municipal tax burdens. The section concludes with an analysis of the spatial pattern of industrial land values in the study area, with particular reference to the spread in the cost of industrial sites between Metropolitan Toronto and the industrial nodes of the peripheral zone.

Supply and Demand for Industrial Land in the Metropolitan Toronto Planning Area

Most municipalities in the Metro Toronto Region possess a zoning by-law or an official plan which regulates the amount of land which may be used for industrial purposes. Although some present industrial uses are located outside of the designated areas, any future industrial development must occur within the areas zoned for this purpose. Table XXVI provides a summary of available information on the amount of land presently used by industry in the Metropolitan Toronto Planning Area, the rate at which additional land has been put to this use in recent years, and the supply of zoned industrial land available to meet the demands of future growth. The Metropolitan Toronto Planning Area encompasses Metropolitan Toronto and all of the area designated as the Inner Fringe in Chapter II with the exception of Chinguacousy Township in the northwest which includes Bramalea and Brampton.

TABLE XXVI
INDUSTRIAL LAND USE
IN THE METROPOLITAN TORONTO PLANNING AREA IN 1966^a

	Total Land Area (Acres)	Land Used by Industry			Land Zoned for Industry		
		Acres 1966	Increase Acres	1963-66 % Increase	Total (Acres)	Total as a % of Land Area	Vacant (Acres)
City of Toronto (approx.) ^b	31,054	1,972	16	1	3,354	11	415
Suburban Ring	123,426	8,185	1,407	21	24,201	20	14,036
Total Metropolitan Toronto	154,480	10,157	1,423	18	27,555	18	14,451
Fringe Municipalities ^c	306,616	3,637	602	20	23,173	8	18,777
Total Planning Area	461,096	13,794	2,025	17	50,728	11	33,228

^a Based on data supplied by the Metropolitan Toronto Planning Board.

^b The 23 planning districts used by the Metro Planning Board for the most part do not coincide with political units. However, planning districts 1, 2, 4, and 6 cover approximately the same area as the City of Toronto.

^c The Metro Planning Area extends beyond the legal limits of Metropolitan Toronto to encompass the area bounded by Mississauga on the west, Toronto Gore, Gaughan and Markham Townships on the North, and Pickering Township on the east.

It is necessary at the outset to clarify the various categories of land described in the table. The first category refers to the total acreage that is presently being used by industry. It is not intended to include surplus property that is being held by industrial concerns for future expansion purposes. Land zoned for industry can be divided into two categories, occupied and vacant. Only the latter is shown as a subtotal in the table. Zoned industrial land that is occupied differs somewhat in total area from the land used by industry for two reasons. Part of the land zoned for industry will still be used for other purposes. At the same time, at least some land currently used by industry lies outside the tracts which are now zoned for industrial use. Despite these problems in equating the various categories, a comparison of the vacant land with the acreage now in use and the increase in this acreage between 1963 and 1966 provides a rough measure of the existing balance between the supply and demand for industrial land within Metropolitan Toronto and its immediate environs. The zoned industrial land that is classified as vacant includes property that has been acquired by manufacturing firms to meet the needs of future expansion.

It will be noted that almost one-fifth of the total land area within the legal boundaries of Metropolitan Toronto has been zoned for industrial use and that about half of this area, amounting to over 14,000 acres, was still classified as vacant in 1966. As might be expected there was very little vacant land remaining within the city itself. Even in the suburban Boroughs, where about 1,400 acres had been put into industrial use over the preceding three years, the vacant land was being taken up rather rapidly. The amount of vacant industrial land in Metropolitan Toronto is still almost one and one-half times

as great as the amount in use. It must be remembered, however, that some of the vacant land is in the hands of existing industrial concerns and is being held for their own expansion.

In the municipalities of the Planning Area which lie outside the boundaries of Metropolitan Toronto there remained in 1966 an even larger reserve of vacant land designated for eventual industrial use (over 18,000 acres). The three-year increase between 1963 and 1966 in the amount of land used by industry was about 600 acres or 20 per cent. The percentage increase was in fact almost identical to that of Metropolitan Toronto excluding the central city. Undoubtedly more land could be zoned for industrial use in the outlying sectors of the fringe municipalities if and when the need arose.

The distribution of land currently used by industry within the Metro Planning Area, measured as a per cent of the total land area of each of the 23 planning districts, is shown in Map 5. Map 6 shows the spatial pattern of growth between 1963 and 1966. In the latter map the increase in each district for the three-year period is expressed as a per cent of the acreage in use in 1963.

In terms of physical space there is clearly room for a continued growth of manufacturing for some time to come even within the political boundaries of Metropolitan Toronto. And in the surrounding municipalities the space restrictions are much less significant. The supply of serviced industrial land available for sale at any one point in time would of course be less than the total acreage of vacant land designated for industrial use, but it can be assumed that it would be maintained at a level sufficient to meet the current demand. Some types of industry may require a site fronting on Lake Ontario and for certain kinds of property such as this, a shortage has definitely arisen in the immediate environs of Toronto. By and large, however, it will be the cost of land rather than the lack of an adequate site in a physical sense that will motivate firms to seek a location outside of Metropolitan Toronto, particularly if they by-pass the vacant areas of the fringe zone.

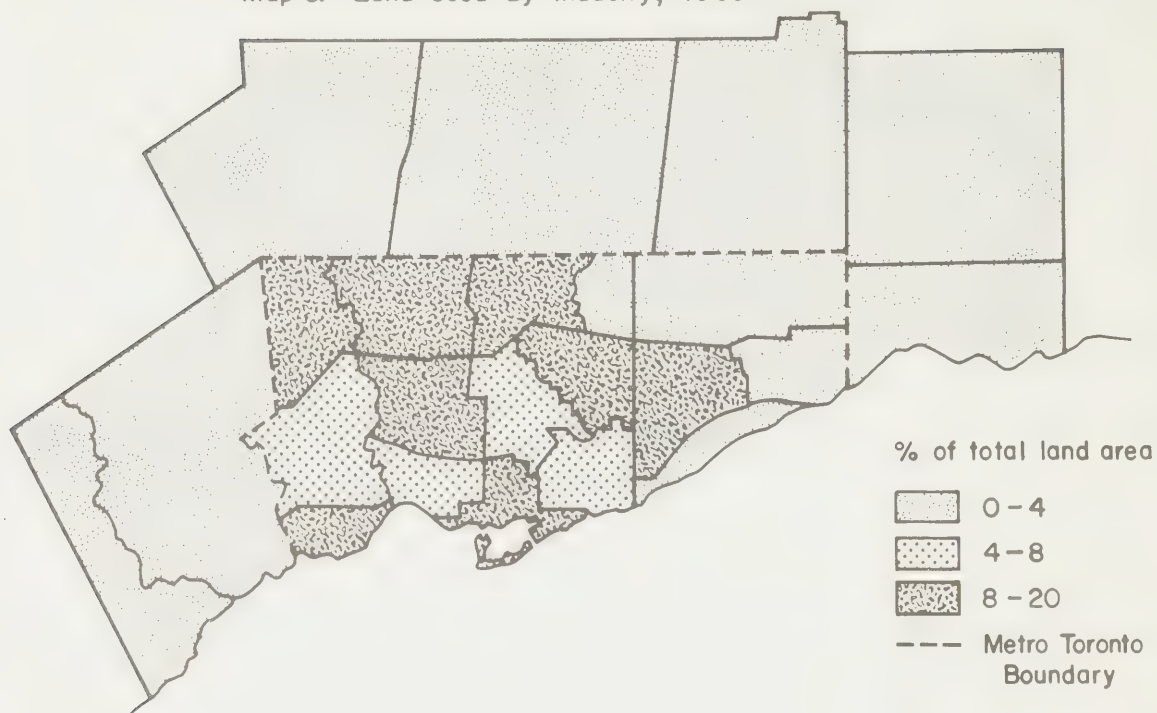
In selecting a site the individual firm may be governed by preferences that will limit its choice. Not all of the space set aside for industrial use within the Metro area will be considered equally attractive. Location on a major transport artery such as Highway 401 or 400 is considered advantageous not only for reasons of accessibility, but also because of its prestige value and potential for on-site advertising. Many firms nowadays prefer a site within a planned industrial park. The reasons are numerous. Nearly always, serviced sites of various sizes are available for immediate use, ensuring a return on the investment in as short a time as possible. The firms are also in a better position to bargain collectively for increased or improved municipal services. The strict architectural controls and landscape rules of most industrial parks lead to an attractive industrial community and prohibit undesirable or noxious industries.

Land Requirements of the Individual Plant

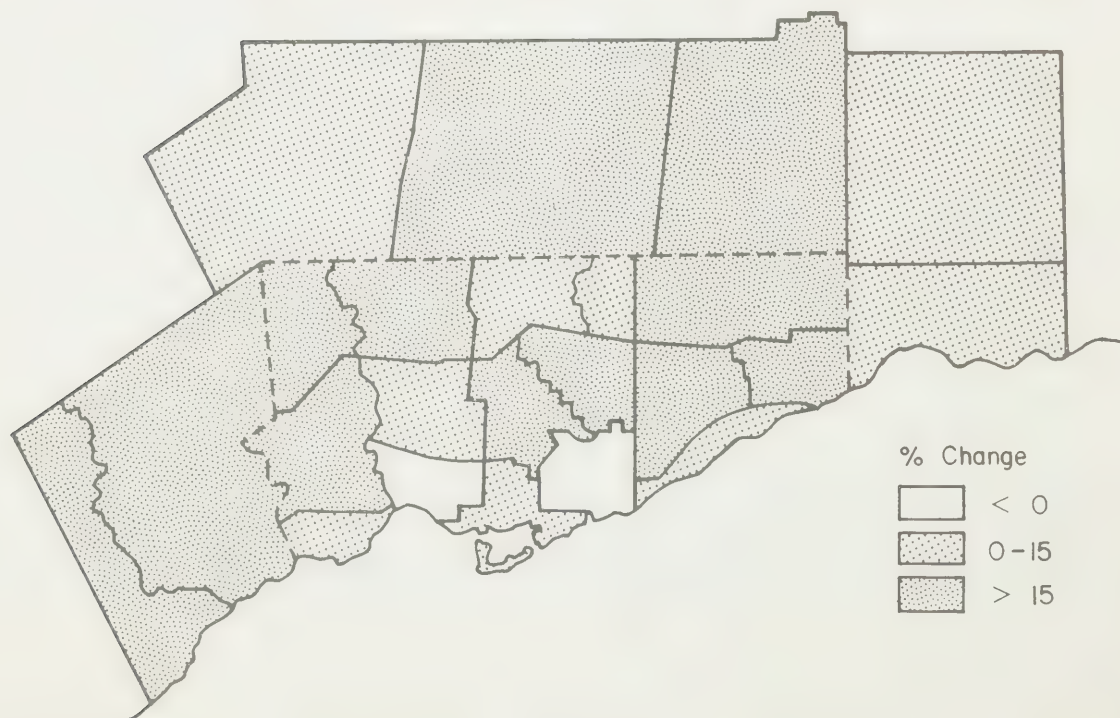
In discussing land as a cost factor it is useful to think in terms of what might be described as a typical plant, bearing in mind of course the wide range in land requirements for firms in different size categories. Land requirements may also vary significantly depending on the type of measuring in which a firm is engaged. It has

METRO TORONTO PLANNING AREA

Map 5. Land Used By Industry, 1966



Map 6. Percentage Increase in Land Used by Industry 1963-66



been suggested that a modern industrial site should be five times the actual area of the buildings to allow for sidings, loading platforms, truck access, parking facilities, storage areas, and future expansion.¹ Based on this requirement a plant of 50,000 square feet would need a site of about six acres. In areas of high priced land there would be an incentive to make do with less and to employ it more intensively, whereas in areas where the cost was low firms would probably be inclined to purchase more of it. Available capital at the time of purchase could also be a factor in the amount of land acquired.

In the field survey which formed a part of this study the firms interviewed fell into a wide range of size categories. The median size of plant in terms of floor space was about 50,000 sq. ft., but the range extended from less than 10,000 sq. ft. to over 60,000 sq. ft. Almost 60 per cent of the plants had between 25,000 and 100,000 sq. ft. of building space. The remainder were equally divided between the smaller and larger categories. The median site size, or property holding, was 10 acres but this also varied from less than one acre to 100 acres or more. Approximately half of the firms held between five and 15 acres with the remainder distributed equally above and below these limits. Thus a typical or average plant in the peripheral zone might be described as one with about 50,000 sq. ft. of building space on a site of 10 acres, with a ratio of plant size to site size of just over 8 to 1.² It might also be described as having an employment of about 75 to 100 although the number of employees per unit of floor space varied considerably from one plant to another.

There was in fact considerable variation amongst individual plants not only in their overall size, but also in the ratio of site size to building space. About one-sixth of the firms had a land holding over 15 times the floor space of the plant, while the remaining 83 per cent of the firms were distributed almost uniformly along a continuum in which the ratio extended from less than 1:1 for a few multi-storey plants to 15:1. If a ratio of 5:1 is accepted as a reasonable norm which would allow for future expansion, about 70 per cent of the firms interviewed appear to have purchased more land than they are ever likely to need and more than 40 per cent, or those with a ratio of at least 10:1, seem to have over twice as much land as they are likely to require. In the interviews firms were asked to indicate how much of their land holding they really needed at their present scale of operation. Although only about 60 firms responded to this question the median ratio of land required to building space was 3:1 in contrast to the ratio of 8:1 for the actual property holdings. For the typical plant of 50,000 sq. ft. described above this would mean that only about 3.5 acres of the 10 acre site were actually in use. However, one-quarter of the respondents did claim a present land requirement which exceeded a ratio of 5:1 when it was related to the size of their building and in several cases it was over 15:1. It is possible therefore that some of the plants have a legitimate need for what appears to be superfluous land, but the general tendency seems to have been to purchase more than the amount required for normal expansion purposes.

¹ Taken from the contents of an address by Mr. Ian McRae, Chairman of the Board of Canadian General Electric, to an annual meeting of the Canadian Manufacturer's Association in Toronto. The address was published by the Ontario Department of Economics and Development in the *Municipal Industrial Development Guide*, 1965.

² The median plant size and site size are both based on groups of 84 respondents, but the two groups do not coincide exactly. Ten firms provided information on property holdings but not on floor space, and vice versa. However, of the 74 firms which answered both questions the median ratio of land to building space was similarly 8 to 1. The mean was about 11 to 1. About 10 of the firms were in multi-storey buildings but not all of the plants in this category had low site size-plant size ratios.

From the foregoing, it would seem likely that manufacturing concerns in towns of the peripheral zone where land is cheaper, have tended to locate on larger sites than would be characteristic of similar plants in the Metro suburbs. The median site size-plant size ratio for the Bramalea sample was only about 4.5:1, the lowest for any town included in the field survey. This can be attributed, at least in part, to the higher market value of industrial land in this centre. However, to prevent speculation, Bramalea Consolidated Developments has placed some restriction on the amount of land it will sell to an individual firm and uses a ratio of 4:1 as a general rule of thumb in estimating how much land a plant requires. The median and mean ratios of site size relative to the floor space of plants are listed in Table XXVII for the seven centres included in the survey. It will be seen that Barrie has a ratio only slightly higher than that of Bramalea and that Georgetown, Guelph and Kitchener at the upper end of the scale are all very similar. Although Orangeville and Orillia have median values intermediate in rank, they fit into the upper group in terms of the mean ratios due to the inclusion of several plants with very large property holdings. It is difficult to reduce much more from this table other than the fact that Bramalea and Barrie tend to differ from the other centres. In the case of Barrie the lower ratio can probably be traced to the higher cost of sites fronting on Highway 400.

TABLE XXVII
SITE SIZE AS A MULTIPLE OF FLOOR SPACE OF PLANTS

	No. of Firms Responding	Median	Mean
Bramalea	11	4.4	6.0
Georgetown	12	10.5	11.6
Orangeville	7	7.2	20.2
Barrie	14	5.7	7.2
Orillia	11	7.2	12.0
Guelph	12	11.3	15.1
Kitchener	7	10.5	12.2
ALL PLANTS	74	8	11.4

The Market Value of Industrial Land

Although the price of industrial land is largely determined by the supply and demand for land in this category, it is also influenced by competition from other uses. Zoning regulations generally prevent interference among the various land markets but speculation that the regulations can be or will be amended tends to increase the demand pressures on industrial land. A noticeable example occurs within the urban core, where commercial land commands a higher price than industrial. Hence, industrial land and buildings, often obsolete for manufacturing purposes, but adjacent to the commercial sections sell for prices much higher than their value as industrial sites. Similarly, in the suburbs of larger urban centres, and especially in the suburbs of Metro Toronto, developers exert strong pressure to have zoned industrial land changed to residential because of the higher prices received for residential lots.

In examining industrial land values within the Metro Toronto Region, it immediately becomes apparent that prices decrease with distance from the urban core, and that the land values are an exponential function of distance. The land value surface resembles an inverted cone with concave sides, with the peak situated in the industrial hub of downtown Toronto. Secondary peaks (e.g. Oakville, Barrie) and ridges (e.g. along the Queen Elizabeth Way) occur, but these are relatively insignificant in the overall pattern.

The price pattern can best be explained by supply and demand, the determinants of market price in a competitive economy. The high cost of industrial land in the urban core (up to \$140,000 per acre) is due to two factors: it is the location most accessible to the whole region and most proximal to the services of the central business district, and it has potential for commercial use. Demand for land in this "incubator" area³ is relatively strong and supply is very limited.

In Figure 5 prices of serviced industrial land in about fifty localities, including both districts of Metro and outlying municipalities within two hours' travelling time of downtown Toronto, have been plotted against travel time from the centre of the city.⁴ The graph fitted to these points shows the effect of distance from the Toronto core on the market value of industrial land within the study area. By far the greatest change in price with distance (i.e. where the slope is steepest) occurs within Metropolitan Toronto. Beyond the Metro boundaries, the decline tapers off with distance. This taper continues to the point where the price of unserviced industrial land drops to the price of agricultural land, or to the point where the value of serviced industrial land equals the price of agricultural land plus the cost of servicing. Between Toronto and Guelph and Toronto and Hamilton, the price of industrial land does not fall to the agricultural level but tends to rise again as these other industrial centres are approached. From the graph it is evident that beyond one hour's drive from Toronto, the price of industrial land is not significantly affected by distance from the Toronto core.

Map 7 shows the general pattern of the land value surface in the study region. Some inconsistencies may occur because of the varying quality of the sites and services provided and because of the limited data available on industrial land values. Nevertheless, the overriding pattern is quite evident.

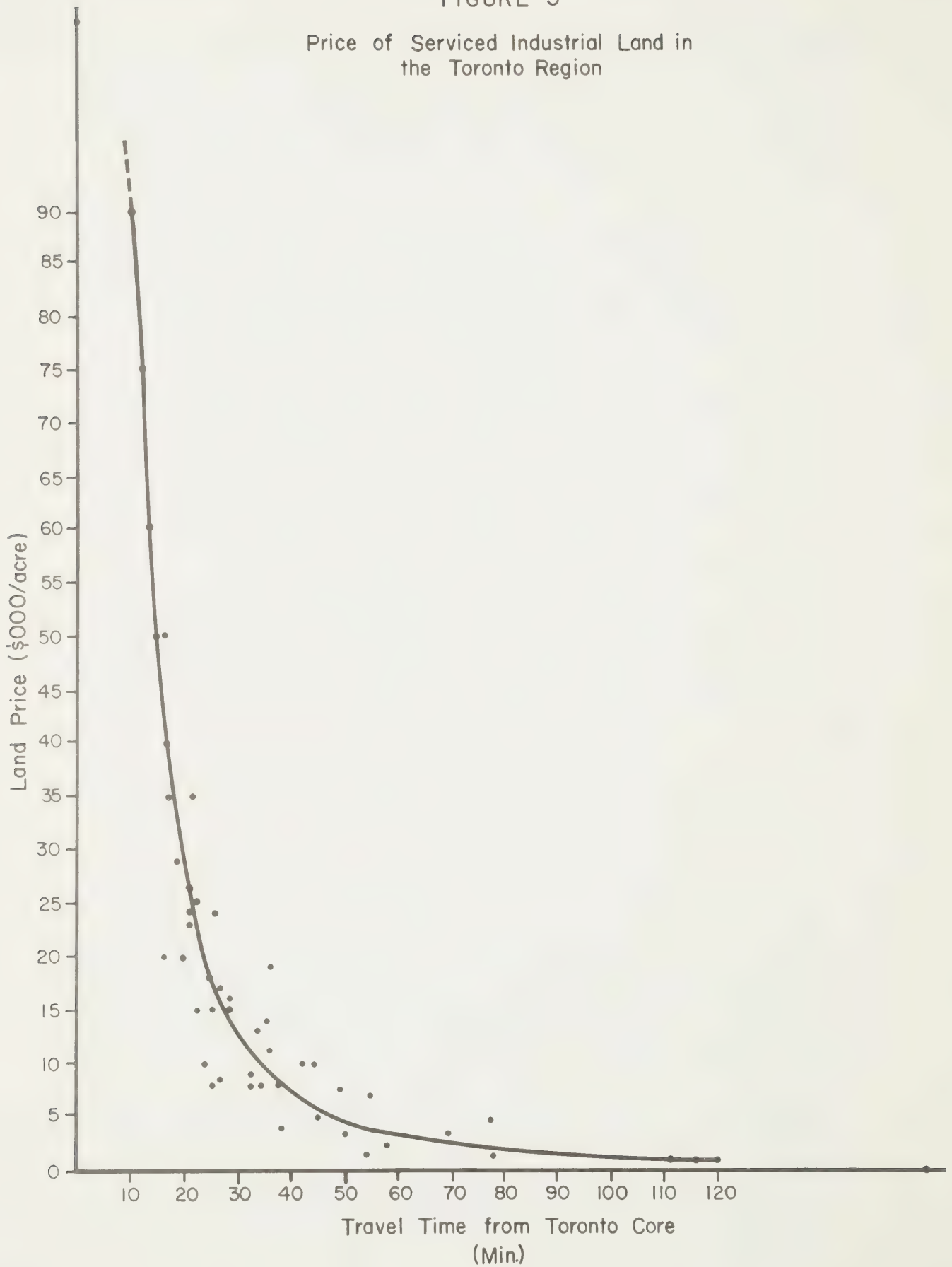
There is a noticeable drop in land price along the Metro Toronto boundary, due to certain transportation and service disadvantages outside the legal limits of the metropolitan centre. Cartage rates for Metro do not apply and freight is usually shipped on a distance basis. Many service industries have higher rates for areas outside Metro and deliveries are not so fast. The cost of open telephone lines or long distance calls to the city applies only to firms located outside the Metro boundary. Also, local municipal services, such as snow removal and garbage collection, are generally inferior in the surrounding areas.

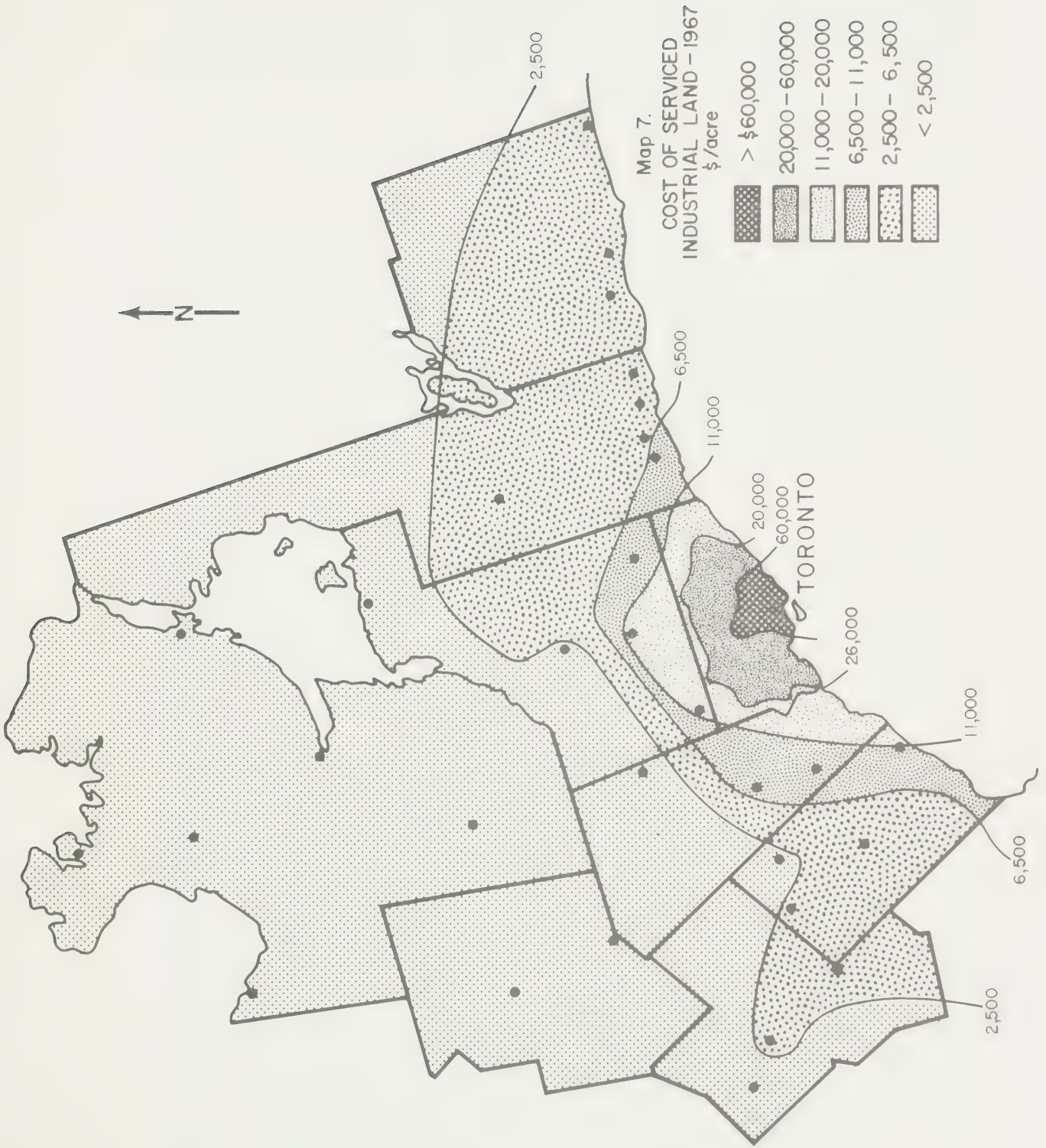
³ The industrial core of the city with its great quantity of rentable industrial space has been described as an incubator for new firms.

⁴ The industrial land values used in this study are generally for the year 1967 and have been obtained from three sources: *1967 Industrial Directory of Municipal Data*, *1967 Directory of Controlled Industrial Areas in Ontario Municipalities* (both published by the Ontario Dept. of Economics and Development) and the Metropolitan Toronto Industrial Commission. In some cases, the values reflect recent sales, while in others they are no more than the asking price.

FIGURE 5

Price of Serviced Industrial Land in
the Toronto Region





It is also evident that sectoral irregularities exist in the land value surface. Within a 25 mile radius of the city centre, the price of land tends to drop off faster to the east and northeast than to the west. For example, serviced land in Pickering Township and Markham was selling in 1967 for \$6,000-\$8,000 per acre, while prices in Mississauga ranged upwards from \$9,000 to \$25,000. The demand for industrial sites, reflected in the manufacturing growth trends, showed a similar pattern. Two factors may account for this: Toronto International Airport, used by manufacturing firms for transporting both personnel and freight, is located in the northwest sector; and the remainder of the Ontario market is situated primarily to the west of Toronto (e.g. Hamilton, Niagara, Kitchener, London, Windsor).

Another irregularity in the conical land value surface is caused by the high value of sites situated along major traffic arteries. Sites adjacent, or close, to Highways 400, 401 and the Q.E.W. are prime examples. The relatively high values attached to these sites are only partially explained by their increased accessibility. Modern industrial buildings and landscaped properties alongside a major highway have become a form of advertising and public relations. For example, in one particular industrial park in the Borough of North York, sites adjacent to Highway 400 in 1967 commanded a price of \$25,000 per acre while other sites in the same development and with the same services, but situated further back from the highway, were priced at \$17,500 per acre.

There are numerous other factors which cause the price of industrial land to deviate slightly from the general land value surface. The level of services provided at a site can account for many inconsistencies in the spatial pattern. The important services which will affect the land value are the availability and size of water mains, sanitary sewers and storm sewers, the availability of natural gas and electric power, railway sidings onto the site, and the quality of access roads to the main highways. Differences in any of these services will usually result in variations in the price of the land. The quality of the land itself—the topography, the drainage, the type of soil and the carrying capacity—will also affect the value of the land for industrial use.

Another factor which influences the price of industrial land within a particular community is whether the site has been developed by the municipality or by a private land developer. At some time, most municipalities are faced with a decision regarding the desirability of a planned industrial land development as a means of attracting industry. The principal issue is whether the development should be undertaken as a municipal venture subject to the limitations of cost and legislative restrictions, or whether private enterprise should be encouraged to undertake the project. If the municipality decides to proceed with a project at the public's expense, it must contend with restrictive legislation regarding the acquiring, servicing and disposing of the land.⁵ In addition, the rental or sale price is governed by the "no bonusing of industry" clause in Section 348(a) of the Municipal Act. Municipalities cannot bonus or subsidize industrial firms by charging less than the initial purchase price plus servicing and improvement costs. However, municipally owned land is usually available at a lower price than privately developed land of the same economic value. Evidence of this variation within municipalities can be found in Oshawa where privately developed land in 1967 was selling for \$4,000-\$6,000 per acre while municipally owned land with the same services was selling for \$2,500 per acre. In Pickering Township the ratio was \$7,000 to \$5,000-\$6,000.

⁵ Section 379 (1) 49 of the Municipal Act.

Reference was made earlier to the rapid inflation of industrial land values in recent years. Increases have been greatest in the central or more urbanized parts of the region, and notably in the suburban zone where demand has been high and the supply of land is being rapidly depleted. An example of price inflation is provided by a development at Highway 400 and Finch Ave. where land, which was available in 1960 at \$6,000 per acre, was selling at \$25,000 per acre in 1967.

Municipal Taxes

Municipalities tax land owners in order to pay for services which the municipality provides for its residents. These services include such things as police and fire protection, road construction and repair, water supply, sewage treatment, community projects, and education. Since the extent and cost of these services vary among municipalities, as does the taxable property from which revenue can be derived, the tax burden on individual property owners likewise varies. Municipalities may also discriminate against certain categories of property owners (residential, commercial, or industrial) in apportioning the total tax load. Whether or not differences in the taxes levied on industry from one municipality to another are of sufficient magnitude to be viewed as a locational cost must be investigated. Of particular relevance to this study are any differences in the tax burden between the suburbs of Metropolitan Toronto, municipalities of the adjacent fringe zone, and urban centres farther removed from the city.

It should be noted at the outset that local taxes represent only a very small component in the total costs or expenditures of most manufacturing firms. In the field survey, the companies that were interviewed were asked to estimate their municipal taxes as a per cent of the value of their total sales in 1966. The median value reported was only 0.8 per cent. Since there were likely to be gross errors on the high side in a few of these estimates, the median was taken as a more reliable measure of the average than the mean. A similar average, but based on a mean, was arrived at by using municipal assessment records for 1964 in combination with the total value of factory shipments for individual towns, derived from the Census of Manufactures for the same year. The total tax, including both property and business tax, was calculated from the local assessment records for each of the manufacturing plants in four towns, Georgetown, Orangeville, Barrie and Orillia, as well as for a sample of firms in the Rexdale industrial district of Etobicoke. An aggregate figure for the value of factory shipments for the Rexdale sample had to be compiled from the census worksheets. In Table XXVIII the two sets of per cents are compared for the various centres. The most significant feature of the table is the very close correspondence between the averages based on the two methods. The ranking of the four towns which are common to both series is also identical. It would seem that both estimation procedures are fairly reliable. Barrie, in which taxes accounted for only 0.5 per cent of the gross value of manufactured products, was the lowest of the four centres while Orillia, with an average of about one per cent, was the highest. It would be risky to infer from this, however, that the real tax burden for an individual plant is higher in Orillia than in Barrie. The difference may be due, in whole or in part, to variations in the type of industry in the individual towns. Gross value of products, which reflects the total expenditure on all inputs, is not necessarily the best measure of a firm's capacity to absorb taxes. Some types of manufacturing, particularly those using costly semi-finished products of other factories

as a material input, turn out products with a high final sales price. This seems to be the case in Barrie where the value of factory shipments, expressed per employee in manufacturing, is almost twice as high as it is in Orillia. The primary purpose of the table is simply to provide an element of perspective to the subsequent analysis by relating municipal taxes in a general way to the total expenditures of manufacturing concerns. It is not intended to serve as an accurate index of the severity of the tax burden in individual municipalities.

TABLE XXVIII
MUNICIPAL TAXES EXPRESSED AS A PER CENT
OF ANNUAL SALES

	Taxes as a % of Value of Shipments, 1964 ^a	Taxes as a % of Total Sales, 1966 ^b
	Mean %	Median %
Bramalea		0.5
Georgetown	0.62	0.75
Orangeville	0.87	0.9
Barrie	0.52	0.5
Orillia	0.96	1.2
Guelph		1.5
Kitchener		.9
Rexdale Sample	0.65	

^a Taxes based on assessment records and value of shipments based on the Census of Manufactures.

^b Percentages estimated by firms interviewed.

Although the preceding analysis indicates that municipal taxes account, on the average, for not more than one per cent of the expenditures of manufacturing concerns, their role as a locational cost could be much more significant, particularly in intra-regional location decisions. Locational costs include only those costs which vary spatially or from one site to another. Some of the major cost components in an industrial operation, including the price paid for materials exclusive of transportation charges, do not normally qualify as locational costs.

The municipal tax paid by manufacturing firms can be broken down into three components. The first two are the property taxes paid on land and on buildings and the third is the business tax. The business tax is based on 60 per cent of the assessed value of the property times the industrial mill rate. Since it varies in direct proportion to the property taxes it will not be dealt with separately. Property taxes on land and buildings are a function of both the assessed value and the mill rate expressed in mills per dollar of assessment. It is impossible to evaluate the tax burden without taking into consideration both of these variables. In the analysis which follows property taxes are first discussed independently for land and for buildings. The two are then viewed in combination and the business tax is added to determine the magnitude of spatial variations in the total tax burden.

Property Taxes on Land

Assessment in Ontario is done by the local municipality and there has been substantial variation in the procedures employed. County-wide assessment is now being introduced to lend a greater element of uniformity to the process. Some municipalities, particularly the smaller ones, assess all industrial land within their boundaries at a flat value per acre, while others allow for a range in assessed values based on the characteristics of individual sites. In most Ontario municipalities the assessed value of industrial land ranges between 20 and 40 per cent of the market value, but there are numerous exceptions even to this rule. In some cases it may be as low as 10 per cent and in others over 50 per cent. It is hoped that within another five years all municipalities will have shifted to a new policy in which property will be assessed at a level equalling, or at least approaching, its current market value. Generally speaking, in those municipalities where assessed values are set at a low level relative to the sales price of the land, mill rates are set at a higher level to compensate. Thus, the tax burden on industrial land tends to vary more or less in proportion to the market value of the land, but there is by no means an exact correspondence between the two patterns in comparing individual municipalities. It is only within Metropolitan Toronto that the tax burden on industrial sites can be said to vary in very close proportion to the land value surface. This is because there has been for the past decade a uniform policy aimed at equalizing assessment for properties of comparable value in the various municipalities or Boroughs. Deviations in the tax burden from the land value gradients should not exceed the slight variations in the mill rate between the Boroughs. In 1968 the industrial mill rates for the City of Toronto, Etobicoke, North York, and Scarborough all fell within the narrow range of about 97-105 mills.

In view of the substantial differences in the price of industrial land between the Metro suburbs and other urban centres in the study area, significant differences can be expected in the associated tax burden. This is illustrated in Table XXIX where the assessed values for industrial land and 1968 mill rates have been used to calculate the property tax burden for a selection of municipalities. A few centres outside the study area (Midland, Collingwood, and Owen Sound) have been included for comparison with Barrie and Orillia.

The tax burdens in Table XXIX include only the property tax. As noted previously, the business tax will be introduced at a subsequent point in the analysis. Where a significant amount of surplus land is held by a firm for future expansion, it is usually taxed at the lower residential mill rate and exempted from the business tax. In some municipalities such as Orillia, the surplus land may even be subject to a lower assessment. It is important to note also that the assessed values for land in each municipality represent averages and that some variation might be encountered for particular sites. Since the variation in the market value of the land, and associated assessment, is exceptionally high in Metropolitan Toronto, a general measure of the range within the suburban Boroughs has been included in the table.

The average assessment on industrial land listed for Etobicoke, North York and Scarborough is a rough estimate based on discussions with assessment officers in the three Boroughs. It does not represent a precise mean value derived from a tabulation of all industrial properties. Since the estimates for the three Boroughs were almost

TABLE XXIX
PROPERTY TAXES ON INDUSTRIAL LAND, 1968^a

Municipality	1968 Industrial Mill Rate	Average Land Assessment (\$ per acre)	Average Tax (\$ per acre)
Etobicoke, North York and Scarborough	97.2-102.6	7,500 ^b (4,000-15,000)	700 (400-1,400)
Mississauga	125.2	1,000-3,000	125-375
Chinguacousy Twp. (Bramalea)	76.8	1,000-1,300 ^c	77-100
Brampton	89.4	2,100	179
Oakville	86.4	2,500	216
Georgetown	92.4	1,500	139
Vaughan Twp.	121.0	1,500	182
Markham Twp.	119.4	1,000	119
Richmond Hill	92.1	1,600	147
Pickering Twp.	138.1	500	69
Whitby	112.8	1,500	169
Orangeville	130.0	500	65
Barrie	118.8	1,200	143
Orillia	89.2	1,500	134
Midland	68.5	1,000	69
Collingwood	35.2	1,800	63
Owen Sound	43.5	2,800	122
Acton	87.0	1,000	87
Guelph	30.7	4,500	138
Bowmanville	137.8	1,000	138
Port Hope	128.3	500	64

^a Mill rates and the average assessment for industrial land for almost all municipalities except those of Metropolitan Toronto and Chinguacousy Township have been taken from the *1968 Industrial Directory of Municipal Data* compiled by the Ontario Department of Trade and Development. The property tax per acre has been calculated from the latter figures. For two of the towns, Brampton and Georgetown, the tax is based on assessment figures reported in the Directory of the previous year and 1968 mill rates obtained from the Department of Municipal Affairs.

^b The average assessed value of industrial land in Etobicoke, North York and Scarborough is an estimate based on discussions with the industrial assessors in each of the three Boroughs. Since the estimates for the three areas were almost identical, they have been treated collectively in the table. The range between high and low value properties is shown in brackets.

^c Data for Chinguacousy Township were obtained from the industrial commissioner of Bramalea Consolidated Developments Ltd. Industrial land is assessed at 10 per cent of its market value in this municipality. The standard price for industrial sites in Bramalea is \$10,000 per acre, but land with a rail siding is sold for \$13,000 per acre.

identical, they have been treated collectively in the table. The average property tax calculated for industrial sites in the suburban municipalities of Metropolitan Toronto in 1968 was about \$700 per acre, but in the areas of highest priced land such as Don Mills, the tax burden on the land was double this level. The variation below the estimated mean was much less substantial. In North York and Etobicoke the lower end of the range was \$550-\$600 per acre. Much the same situation prevailed in Scarborough, but a few of the outlying industrial pockets in this Borough were assessed as low as \$4,000-\$4,500 resulting in a property tax of only about \$400 per acre.

In Mississauga, on the western fringe of Metropolitan Toronto, land taxes on the highest priced sites were slightly lower than on the lowest priced sites in Scarborough. With this exception, however, there appears to be a sharp discontinuity in the property tax surface coinciding with the political boundary of Metropolitan Toronto. Outside of Metro, differences between municipalities in the property tax on industrial land do not generally exceed about \$100 per acre. There is certainly a tendency for areas fringing on Metropolitan Toronto, particularly those on the west and northwest, to be characterized by higher land taxes than municipalities farther out, but there are a number of significant exceptions to the rule. The fringe zone as a whole cannot be contrasted with centres in the more peripheral areas. Chinguacousy Township, including the unincorporated centre of Bramalea, stands out as one of the major anomalies. In this centre, taxes on industrial land, which sells for \$10,000 to \$13,000 per acre, are as low as in towns far removed from Toronto where serviced industrial land has a market value of only \$1,000 to \$2,500 per acre. In maintaining taxes at a low level as an attraction for industry, Bramalea Consolidated Developments Limited has probably been in a stronger bargaining position in dealing with the township council than it would be with an urban council if the centre were incorporated. Taxes on industrial land have also been kept at the Bramalea level in Pickering Township on the eastern fringe of Metro and at a level not a great deal higher in Markham Township on the northeast.

In the table there emerges a group of centres, including Orangeville, Midland, Collingwood, and Port Hope, as well as Bramalea and Pickering Townships, in which the 1968 property tax on industrial land was only about \$65-\$80 per acre. Although some of these centres may require less revenue to cover the services which they provide, it seems likely that the tax on industrial land is being held at a low level deliberately as an attraction for new industry. There are some rural townships and small service centres within the study area which apply even lower taxes to industrial land, but it is doubtful that this situation would long prevail if a significant number of manufacturing concerns began to move into these areas. There is another group of centres, including Georgetown, Richmond Hill, Barrie, Orillia, Owen Sound, Guelph, and Bowmanville, in which the 1968 property tax on industrial land fell within the range of \$125-\$150 per acre, or about twice the level characteristic of the first group. Other municipalities within the general fringe zone of Metropolitan Toronto, such as Vaughan Township and Brampton on the northwest and Whitby to the east, impose somewhat higher taxes on land, but they are still below the \$200 level. Unfortunately, data were not available for Ajax. In Mississauga, as noted previously, the property tax on land ranged all the way from \$125 up to almost \$400 per acre. This is hardly surprising since Mississauga includes areas such as Malton which are in essence industrial suburbs of Metropolitan Toronto.

Property Taxes on Buildings

Since property taxes are related, at least in a general way, to the market value of land and buildings, it might be logical to expect substantially less variation amongst municipalities in the taxes imposed on buildings than in those levied against the land. Whereas land varies greatly in price throughout the study area, there should be little difference in the cost of constructing buildings. At the same time, it must be noted that the value of an industrial building is usually far higher than the value of the land on which it stands. The spread becomes greater as the cost of land decreases away from Metropolitan Toronto. Since the building bears the major share of the tax burden, a relatively small difference in the tax rate on building space could prove to be of greater importance in terms of dollar savings than a major difference in the tax rate on land. It is extremely difficult to compare building taxes in a very precise manner. Thus, it would be possible for a municipality to maintain a low land tax as an inducement to new industry and to recoup most or all of the lost revenue through a slightly higher tax on the building segment of the property.

Industrial buildings are assessed at a certain proportion of their replacement value less depreciation, the per cent varying from one municipality to another. In theory, these percentages could be adjusted for differences in the mill rate in order to compare the tax burden on buildings in various towns. In practice, the problem is more complex. It is often difficult to determine the precise per cent on which assessment is based and, even when it is stated, there is the possibility that some municipal assessment offices will be more lenient than others in evaluating the market value of the plants under their jurisdiction. The taxes actually paid per square foot of floor space can also be calculated and averages compared for different towns. In this case some of the differences may be due to variations in the average age and quality of industrial plants in the various municipalities. Even new buildings can vary considerably in value; current construction costs may range from \$7.00 to \$12.00 per square foot depending on the type of structure and the ratio of warehouse to office space.

In searching for a spatial pattern of building taxes within the study area, the 1966 building assessment and area of plant were obtained for all manufacturing firms in four towns, Georgetown, Orangeville, Barrie and Orillia. The average tax burden per square foot of building space was then calculated for each centre using the 1967 and 1968 mill rate. The results of this analysis are shown in Table XXX. The taxes actually paid in 1967 and 1968 could have been higher since assessments might have been raised in addition to the increase in the mill rate. Some of the variations may be due to the age and condition of the buildings. In Orillia and Orangeville, the plants tend to be older and 30 per cent of the firms are located in multi-storey buildings in contrast to only 18 per cent in Georgetown and Barrie. If some allowance is made for differences in the quality of buildings, Orillia stands out as the only major anomaly in 1968. The tax burden per square foot of building space appears to be only about one-half that of the other three centres. It is possible that some of the figures used in the Orillia calculations are in error or that assessments have been increased substantially in this centre (particularly since the mill rate remained unchanged). The Orillia figures do serve one useful purpose in that they illustrate the complexity of comparisons of municipal tax burdens and the caution which must be exercised in drawing conclusions. When municipal taxes were related to the value of factory shipments in

Table XXVIII it appeared as though Orillia had the highest tax burden of the four towns. A still different picture emerges from information supplied by the municipalities themselves. The Ontario Department of Trade and Development in its 1968 survey for the *Industrial Directory of Municipal Data* asked municipalities to report their average property tax on industrial buildings per square foot of building space. This information had not been requested in previous surveys. Apart from changes in assessed values between 1966 and 1968 these figures should be comparable to those calculated in Table XXIX. Many municipalities did not respond to this question, but replies were received from Orangeville, Barrie and Orillia. Orangeville submitted a figure of 16 cents which equates closely with the tax calculated above. Orillia and Barrie, however, both reported an average tax of 20 cents per square foot.

TABLE XXX

AVERAGE PROPERTY TAX PER SQUARE FOOT OF INDUSTRIAL
BUILDING SPACE CALCULATED FOR GEORGETOWN, ORANGEVILLE,
BARRIE AND ORILLIA

	Average Assessment per sq. ft. ^a 1966	Mill Rate ^b		Tax Burden (cents per sq.ft.)	
		1967	1968	1967	1968
Georgetown	\$1.94	86.3	92.4	16.7	17.9
Orangeville	\$1.14	104.0	130.0	11.9	14.8
Barrie	\$1.28	113.1	118.8	14.5	15.2
Orillia	.86	89.2	89.2	7.7	7.7

^a The average assessment per sq. ft. of building space was calculated from the assessment records in each town.

^b The 1967 and 1968 industrial mill rates used in this table were obtained from the Ontario Department of Municipal Affairs. The 1967 rates for Georgetown and Orangeville are somewhat higher than those listed in the *1967 Industrial Directory of Municipal Data* compiled by the Department of Trade and Development. In some cases the mill rates submitted for inclusion in the Directory may be for the previous year.

The figures on average property tax per square foot of building space reported by various municipalities to the Department of Trade and Development in its 1968 industrial survey are listed in Table XXXI. Estimates based on other sources have been added for the suburban Boroughs of Metropolitan Toronto and Bramalea. Problems in the interpretation of these figures are discussed in the footnotes to the table. In addition to any allowance which should be made for differences in the quality of buildings, there is no guarantee that the individual municipalities have been reasonably consistent in the methods employed in deriving these averages. It would be exceedingly risky to try to evaluate the magnitude and significance of any differences that might exist between the various centres of the peripheral zone in the taxes imposed on buildings of comparable quality. However, there does seem to be evidence of a substantial difference in the property tax on buildings between Metropolitan Toronto and most other municipalities. The difference would appear to amount to at least five to ten cents per square foot of building space.

TABLE XXXI
AVERAGE PROPERTY TAX ON INDUSTRIAL BUILDINGS
PER SQUARE FOOT OF BUILDING SPACE, 1968

Municipality	Average Tax (¢ per sq. ft.) ^a	Municipality	Average Tax (¢ per sq. ft.)
Etobicoke, North York and Scarborough	30 ^b	Orangeville	16
Mississauga	25-26	Barrie	20
Chinguacousy Twp.(Bramalea)	17 ^c	Orillia	20
Oakville	23	Collingwood	21
Vaughan Twp.	23	Owen Sound	28
Markham Twp.	18-26	Guelph	17
Richmond Hill	43	Waterloo	18
Whitby	23.5	Bowmanville	21
		Port Hope	10-19

^a Caution must be exercised in the interpretation of figures in this table. The taxes for all municipalities, except Etobicoke, North York, Scarborough and Bramalea, have been taken from the *1968 Industrial Directory of Municipal Data* compiled by the Ontario Department of Trade and Development. There is probably a good deal of variation in the way in which individual municipalities have calculated or estimated their "average" property tax on buildings. Markham Township and Port Hope reported their tax as a range, while the Waterloo figure was said to be based on a random sample. The Collingwood figure was given in the form of an assessment of \$7.00 per sq. ft., less 15 per cent (presumably for depreciation). The tax of 21 cents per sq. ft. has been calculated from this assessment using the 1968 industrial mill rate. Some municipalities may have submitted an average derived from the 1967 tax returns, while others would have incorporated the higher 1968 mill rates. There is also the possibility that certain municipalities have included taxes on the land in their figures, although this was not the intention of the survey questionnaire. And finally, it seems likely that some of the figures are little more than rough estimates that may come closer to the tax on new plants rather than to the average for all industrial buildings. The very high figure submitted for Richmond Hill may be due to the inclusion of taxes on industrial land and/or the presence of one or more very large plants with exceptionally costly buildings.

^b Scarborough was the only Borough of Metropolitan Toronto which had replied to the 1968 survey questionnaire by September 1968. The office of the industrial commissioner in Scarborough submitted a figure of 30 cents per sq. ft. for the average tax on industrial buildings. When an enquiry was made at this office it was learned that the figure was based on an average calculated several years previously, adjusted for subsequent increases in the mill rate. In the course of further questioning it was stated very emphatically that the original figure included the property tax on land as well as on buildings. If this were the case, the building tax would be at least several cents lower than the figure submitted (e.g. the tax on a three acre site would be about \$2,100.00 or the equivalent of four cents per sq. ft. for a plant of 50,000 sq. ft.). However, other evidence suggests that the current tax on buildings alone would average at least 30 cents. The industrial assessment officers for Scarborough, North York and Etobicoke were contacted independently and asked to make an estimate of the average property tax on industrial buildings within their respective Boroughs. In Scarborough the average assessment was estimated to be about \$3.00 per sq. ft., with almost all buildings falling within a range of \$2.80 to \$3.50. At the 1968 mill rate this represents a range in the tax on buildings of 28.7 to 36 cents per sq. ft. and an average of 30.8 cents. If the 1967 mill rates were used the average would be 29 cents. In North York the industrial assessor stated that the average 1968 property tax for buildings, including the tax on the physical site,

would be at least 40 cents per sq. ft. of building space. However, when informed of the estimated average assessment of \$3.00 per sq. ft. for Scarborough, he stated that this would represent a very good estimate for North York as well. Since the North York mill rate is slightly lower than that of Scarborough, the 1968 tax based on a \$3.00 assessment would be 29.2 cents. This estimate is likely to err on the low side since an average site size-plant size ratio of at least 6:1 would be required to raise it to the initial estimate of 40 cents (or more) based on the total property tax (including land as well as buildings). In Etobicoke an estimate of 35-40 cents was suggested as an average for the tax on buildings. Although assessments for buildings of comparable value are supposed to be equalized (as far as possible) across Metro, there could be some variation in the average quality and age of the plants in the three Boroughs in addition to slight differences in the mill rate. The foregoing discussion suggests that a conservative estimate of the average building tax for Etobicoke, North York and Scarborough in 1968 would be about 30 cents per sq. ft. of floor space. The tax burden on individual plants would range, in most cases, between 28 and 35 cents per sq. ft.

- ^c The building tax for Chinguacousy Township is at best a rough estimate based on material supplied by the industrial commissioner of Bramalea Consolidated Developments Limited. In their promotion literature, Bramalea Consolidated Developments have compared the municipal tax burden for Bramalea, Etobicoke, North York and Scarborough for a plant of 100,000 sq. ft. occupying a 10 acre site (i.e. site size-plant size ratio of 4.3:1). A hypothetical value of \$6.00 per sq. ft. was used for the plant buildings. The total property tax on both land and building is expressed per sq. ft. of building space. For 1967 the Bramalea tax was estimated to be not more than 45 per cent that of the Metro Boroughs. This can be attributed both to a lower mill rate for Bramalea and to the Chinguacousy Township policy of assessing industrial property at a lower per cent of the market value than has been the practice in Metropolitan Toronto. The difference in assessment policy for land has been substantially greater than for buildings. The actual market value of the land is also lower in Bramalea. If the estimates made by Bramalea Consolidated Developments were broken down, it would be found that the estimated tax burden on land in Bramalea was only about one-tenth that of the Metro Boroughs, while the building tax was just over half (about 55 per cent) the Metro level. The actual tax on the building in the Bramalea estimate works out to about 13.7 cents per sq. ft. If allowance is made for the increase of about one-half mill in the Chinguacousy tax rate in 1968 and if the rather unrealistic \$6.00 per sq. ft. market value for buildings is raised to \$7.00, the 1968 tax on buildings for Bramalea would be 16.5 cents per sq. ft. The same answer can be derived by applying the 55 per cent ratio to the 30 cent tax estimated in the table for Etobicoke, North York and Scarborough. There is, however, one unknown factor in the equation. Although the Chinguacousy assessment policy with regards to buildings has been based on a lower per cent of market value than that of Metropolitan Toronto (about 30 per cent as opposed to 40-50 per cent), the Chinguacousy assessment office might be less liberal in their evaluation of current market value. The average assessed value for industrial buildings in Scarborough was previously stated to be about \$3.00 per sq. ft. This would represent an appraised value of about \$6.70 if the assessment was based on 45 per cent of the replacement value less depreciation. It is obvious that the building tax in Bramalea has been substantially lower than in the Metro Boroughs but the spread between 17 cents and 30 cents shown in the table should be accepted as no more than a crude approximation. In the future, industrial properties will be assessed at something approaching their real value and the mill rates will be reduced accordingly. This should not affect the difference in the total tax burden between Bramalea and Metropolitan Toronto, but it would affect the distribution of the tax burden between the land and building segments of an industrial property, particularly in Bramalea.

In the case of land, the higher taxes in Metropolitan Toronto could be explained, at least in part, by the inflated market value of the property in relation to other parts of the study area. In the case of buildings, an alternative explanation must be sought. Greater revenue is undoubtedly required relative to the property base in a metropolitan centre, particularly when it is experiencing rapid growth fed by in-migration from other areas. Enormous expenditures are required to cope with some of the diseconomies associated with an urban agglomeration of this size. Investment in public transit systems and expressways might be cited as an example. Thus, a higher level of tax burden might be expected for all property owners. By adjusting the commercial-industrial mill rate, relative to the residential rate, and by assessing properties at a different percentage of their market value, municipalities can distribute the total tax load in whatever manner suits their purpose. There is reason to believe that industrial properties in Metropolitan Toronto are taxed at a higher rate, relative to home owners, than would be the case in most other municipalities which must actively compete with one another and with Metropolitan Toronto for new industry. There is little, if any, tax rate competition between the Metropolitan Boroughs.

The Total Tax Burden

Drawing on the material presented in the foregoing discussion it is possible to estimate, albeit in a very approximate fashion, the annual tax savings that a firm might expect if it were to select a location in a peripheral town in place of a location within the suburbs of Metropolitan Toronto. It will be assumed that the plant has a floor space of 50,000 square feet and that it requires a site of five acres. This represents a site size-plant size ratio of just over 4:1. Any additional land that was purchased would probably be taxed at a lower rate. The average property tax for land in the Metro suburbs is taken as \$700 per acre (Table XXIX) and the estimated tax on buildings as 30 cents per square foot (Table XXXI). Two variants are offered for the periphery, based on land taxes of \$75 and \$150 per acre and building taxes of 20 cents and 25 cents per square foot. Although the differences in building taxes between Toronto and some towns of the periphery might exceed 10 cents per square foot, 10 cents would seem to be a safer maximum for the purposes of this comparison in which building quality is to be held constant.

The total municipal tax burden, including the property tax on both land and buildings and the 60 per cent business tax, has been calculated for the hypothetical firm in Table XXXII. If a plant of this size were to locate in the Metro suburbs a municipal tax bill of about \$30,000 annually might be expected. The tax in the peripheral town would be about 50 to 75 per cent as high, representing an annual saving of something in the order of \$8,000-\$13,000. For a plant of 50,000 square feet on a five-acre site, a one cent difference in the tax per square foot of building space represents as great a saving as a \$100 difference in the tax per acre of land. Thus, the savings in land tax are quite substantial between Metropolitan Toronto and those centres in which the property tax on land is about \$150 per acre, but the additional benefits to be derived by locating in a municipality which offers a land tax of only \$75 per acre are negligible. They could be offset by a difference of less than one cent per square foot in the tax on building space and the latter would be next to impossible to detect prior to the move. In the future, if land and buildings are both assessed at their market value, it

should become more difficult to offer a low tax on the physical site without simultaneously reducing the tax on the buildings which occupy it, since there will remain only one variable, the mill rate, which can be adjusted.

TABLE XXXII

ESTIMATED MUNICIPAL TAX BURDEN FOR A PLANT OF
50,000 SQUARE FEET OCCUPYING A FIVE-ACRE SITE, 1968

	Building Tax Tax Rate (per sq. ft.)			Land Tax Tax Rate (per acre)			Total Tax	
	.30¢	.25¢	.20¢	\$700	\$150	\$75	Metro Suburbs	Peripheral Towns
Property Tax	\$ 15,000	12,500	10,000	3,500	750	375	18,500	10,375-13,250
Business Tax	\$ 9,000	7,500	6,000	2,100	450	225	11,100	6,225- 7,950
Total Tax	\$ 24,000	20,000	16,000	5,600	1,200	600	29,600	16,600-21,200
% of Metro Tax	100	83	66	100	21	11	100	56-72

Comparison of Land Costs and Municipal Taxes

Having examined land costs and municipal taxes independently, it would be useful to assess their relative importance as locational costs. Since both are at a maximum in the metropolitan centre, a firm would not be faced with the problem of weighing one against the other in comparing site costs in the Toronto suburbs with those in outlying towns of the study area. Between municipalities of the peripheral belt, including those on the immediate fringe of Metropolitan Toronto, tax burdens on industrial properties do seem to deviate from the land cost pattern. In Bramalea, for example, land costs would be substantially higher than in Barrie or Orillia, but municipal taxes may be somewhat lower. In general, however, the differences in municipal taxes between centres outside of Metropolitan Toronto are not likely to be of the same magnitude as those which distinguish Toronto from the peripheral zone. The main problem then is to compare the land cost and tax cost differentials between the Metro suburbs and the average peripheral town in order to evaluate which of the two site cost factors would be the most influential in the locational process.

For an industrial firm, the investment in land and buildings represents a cost of production comparable to other operating costs such as transportation, labour, and municipal taxes. Unlike buildings and equipment, land is not a depreciating asset and for this reason the purchase price cannot justifiably be viewed as an amortization cost in apportioning it on an annual basis. However, the difference in cost between high and low priced land can be treated as an annual operating cost by considering the amount of return or interest which a firm could expect to receive if it invested its capital in some other way than in property. For the purposes of this analysis, 10 per cent will be considered a fair alternative return on the property investment. Viewed in terms of

rental costs, this estimate may appear rather high. Rental rates usually range between 12 and 15 per cent of the market value of the property. The rental payment must not only provide for a return to the landlord on his investment, but must also be adequate to cover taxes and, where buildings are involved, upkeep and depreciation. On the other hand, if a firm finds it necessary to borrow capital for the initial investment in land and buildings, interest rates on the loan will run as high as 15 to 20 per cent. If the 10 per cent return, on which the subsequent calculations are based, is too high it will tend to overrate the land cost factor relative to the tax factor. However, it is a simple matter to adjust for other rates of return. For an eight per cent rate the land cost differential would be reduced by 20 per cent.

Based on the assumption of a 10 per cent return on capital and land values of \$20,000-\$40,000 per acre in the Metro suburbs, a 50,000 square feet plant requiring a five acre site in Etobicoke, North York or Scarborough would have an annual land cost of \$10,000-\$20,000. In a peripheral town where land sold for about \$2,000-\$5,000 per acre, the corresponding cost would be \$1,000-\$2,500. Thus, the annual savings in selecting a location in a peripheral town might be expected to range between about \$9,000 and \$18,000 (or about \$7,000 and \$14,000 if an eight per cent return on capital was substituted for 10 per cent). The savings are almost identical to those estimated for taxes (\$8,000-\$13,000) in the preceding section.

The foregoing suggests that land costs and taxes should be of about equal importance in influencing a firm to locate outside of the metropolitan centre. However, there are a number of other considerations which may lend greater weight to the land cost factor. In many cases it may be the initial capital outlay (i.e. the purchase price) rather than the cost of land converted to an annual operating cost that is of primary concern to the firm. With firms starting out in business or building a new plant, strain on the supply of capital is a common situation. Borrowed capital may be available only at exceptionally high interest rates. In the case of tax burdens, moreover, there is no real guarantee that differentials at the time the location decision is made will not disappear or diminish in subsequent years. In addition, the measurement problems are so complex that most firms may be unaware of the potential savings that might result from differences between municipalities in the tax on industrial buildings.

Analysis of Questionnaire Responses

Firms interviewed in the field survey were asked to evaluate the role played by land costs, taxes and, where applicable, rental costs in their decision to locate outside of Metropolitan Toronto. Only about 60 per cent of the firms owning or renting their premises responded to these questions. The questions were really only applicable to those plants which had been established within the past 10 to 15 years. In the discussion of the field survey in the Introduction to this study, it was noted that of the 100 plants visited, 55 had selected their present location during the 1960's, 24 between 1945 and 1959, and 21 prior to 1945. All plants could not be expected to be equally sensitive to land costs and taxes as locational factors. Depending on the type of manufacturing process, some firms have smaller land requirements than others in relation to the general scale of their manufacturing operation. It is very difficult, moreover, to evaluate one locational cost component in isolation from the others. For

example, some of the firms in the peripheral zone have only a weak link with Toronto as a market or source of raw materials and for these plants one might expect marketing patterns and associated transport costs to be more relevant than site costs in the decision to locate outside the metropolitan centre.⁶ There are also those firms which do not consider locational costs at all. In most instances these are small privately owned plants which have been established in the vicinity of the owner's home.

The responses to the questions on the significance of land costs and municipal taxes in the decision to locate outside of Metropolitan Toronto are shown in Tables XXXIII and XXXIV. Of the firms which replied to the question on land costs, 59 per cent indicated that lower land costs had been an important, very important, or the most important factor in their decision. The 46 firms which answered the question can be divided into two groups based on the year in which the plant was established in its present location. Thirty of the firms had chosen their location during the 1960's. All but one of the remaining 16 had been established during the period 1945-59. Of the post-1960 group, 73 per cent reported land costs to be an important factor while the corresponding proportion for the pre-1960 group was only 31 per cent. Of the 46 firms which responded to the question on taxes, only 40 per cent claimed that they had been an important or very important factor in the choice of a location outside of Metropolitan Toronto. Although this is a significant percentage, it does fall short of the 59 per cent which responded in a similar fashion to the question on land costs. In this sense it substantiates the inferences drawn in the preceding section of this chapter in which it was concluded that land costs were likely to exert a stronger influence than taxes in the locational process. Responses were obtained from only 11 firms in a similar question relating to rent costs. Four of these firms stated that lower rent had been a very important, or the most important, factor in their choice of a location outside Toronto, while the remaining seven replied that it had been only a minor factor or of no importance.

In the questionnaire, an attempt was made to assess the perception of the municipal tax differential between Metropolitan Toronto and towns of the peripheral zone. Firms were asked to compare on a percentage basis their own taxes with those of a comparable plant in Metropolitan Toronto. Only 35 of the 100 firms interviewed ventured a reply to this question. One of the respondents believed that his taxes were higher than those in Toronto, while eight of the 35 suggested that they would be about the same. The remaining 26 believed that their taxes were lower, but only 17 were willing to estimate the magnitude of the differential. Of the latter group one suggested a figure of less than 50 per cent. The other 16 were evenly distributed across a range of 50 to 90 per cent with an overall average of 70 per cent. It will be recalled that in the analysis of the total tax burden in a previous section of this chapter, taxes in the peripheral zone were estimated to range between about 50 and 75 per cent of those in

⁶ This hypothesis is cited only to illustrate the general complexity of the interpretation problem. It was not actually substantiated in the analysis of the questionnaire responses. For the firms which claimed that lower land costs had been of minor or no significance in their decision to locate outside of Metropolitan Toronto, the mean share of the Toronto market in their total sales was 35 per cent and the median share 30 per cent. Toronto accounted for a slightly smaller share of the market (mean of 29 per cent and median of 25 per cent) for the firms which stated that land costs had been important, very important, or the most important factor in the location decision. The market per cents for the latter group are identical to the averages for all plants included in the field survey (shown in Table XIII in Chapter III). Although the difference in the average for the two groups is not really significant, it tends in the opposite direction to what might be expected from the hypothesis.

Metropolitan Toronto (Table XXXII). It is interesting that the four firms in Bramalea which estimated the magnitude of the differential all selected figures between 60 and 75 per cent, whereas the industrial commissioner of Bramalea Consolidated Developments Limited is convinced that the tax burden in Metropolitan Toronto is more than double that of Bramalea.

TABLE XXXIII

RESPONSES TO QUESTION ON THE SIGNIFICANCE OF LAND COSTS
IN THE SELECTION OF A LOCATION OUTSIDE OF
METROPOLITAN TORONTO

	No. of Firms Responding	Importance of Lower Land Costs in the Location Decision				
		No Importance	Minor Factor	Important	Very Important	Most Important Factor
Bramalea	8		3		3	2
Georgetown	6				5	1
Orangeville	6	2		1	3	
Barrie	10	2	3	1	3	1
Orillia	5	2		1	2	
Guelph	9	2	4		3	
Kitchener	2		1			1
Total	46	8	11	3	19	5
% of Total	100	17	24	7	41	11

TABLE XXXIV

RESPONSES TO QUESTION ON THE SIGNIFICANCE OF TAXES IN THE
SELECTION OF A LOCATION OUTSIDE OF METROPOLITAN TORONTO

	No. of Firms Responding	Importance of Lower Taxes in the Location Decision			
		No Importance	Minor Factor	Important	Very Important
Bramalea	6		2	1	3
Georgetown	10	4	4		2
Orangeville	5	2	1	2	
Barrie	9	4	1	3	1
Orillia	4	2		1	1
Guelph	10	4	2	2	2
Kitchener	2				2
Total	46	16	10	9	11
% of Total	100	35	22	19	24

CHAPTER V

SUMMARY AND CONCLUSIONS

The final chapter of this report is devoted to a resume of some of the more general findings of the study and a brief discussion of the associated policy implications. The summary of findings follows the organizational structure of the body of the report and is arranged under the headings Growth Trends, Spatial Linkages, and Site Factors.

Summary of Findings

Growth Trends

Since World War II, manufacturing in Southern Ontario has become even more concentrated than formerly in the four counties which for general statistical analysis might be described as constituting the Metropolitan Toronto Region. Between the late 1940's and the early 1960's the share of this region in the total manufacturing employment of Southern Ontario rose from about 40 per cent to 46 per cent. After 1961 there was a levelling off in the concentration process and in 1964-65, the last two years for which data were available, there is evidence that a slight downtrend might have begun. Whether the developments of the 1962-65 period represent more than a short-term fluctuation in the upward trend of the preceding 15 years cannot be determined until data become available for subsequent years. It is clear, however, that there has been no concomitant levelling off in the process of population concentration in this region. The proportion of Southern Ontario's total population and urban population falling within the four-county Metro Region continued to increase between the 1961 and 1966 census years. The centralization of other forms of urban employment appears to be proceeding now at a more rapid pace than that of manufacturing.

Industrial expansion in Metropolitan Toronto and its immediate environs during the postwar period has tended to differ significantly from manufacturing growth in other parts of Southern Ontario. Part of the growth in any area can be ascribed to the expansion of existing plants. The remainder is due to the establishment of new enterprises. A highly disproportionate share of the new plants of foreign origin as well as of those in the smaller size categories has chosen to locate in Metropolitan Toronto or within the surrounding fringe. In contrast, larger firms and plants of domestic origin have been less reluctant to select a location beyond the immediate shadow of the metropolis.

Within Metropolitan Toronto and its environs there has been a pronounced trend towards the suburbanization of manufacturing. Employment in manufacturing in the City of Toronto reached a peak of 160,000 in 1950. By 1964 it had declined in absolute numbers by approximately one-third. In 1964, the City accounted for only 35 per cent of the manufacturing employment in the four-county Metro Region in contrast to two-thirds of the total in 1951 and an even higher share in previous years. The expansion of manufacturing activity in the suburban Boroughs of Metropolitan Toronto and in municipalities of the adjacent fringe zone has been fed, in part, by the

outward migration of plants from the central city and, in part, by new firms and branch plants. For example, between 1951 and 1964 the number of workers in manufacturing in the municipalities of Metropolitan Toronto, excluding the City of Toronto itself, grew by 84,000. A parallel increase of almost 14,000 was recorded in the ring of townships and associated urban centres which lies just outside the administrative boundary of Metropolitan Toronto and which has been defined as the Inner Fringe in this study. Nearly half of the growth in the above areas could be traced to a decline of 44,000 in the manufacturing employment of the central city.

Industrial expansion in the suburbs of Metropolitan Toronto and the adjacent fringe has been substantially greater in the western sector. This is in keeping with the historic growth pattern and applies to the broader hinterland zone as well as to the metropolitan centre and its immediate environs. The Oshawa-Whitby area stands more or less alone as an anchor of industrial growth in the eastern part of the study area.

An analysis of growth trends in a wider peripheral belt consisting of the counties encircling the four-county Metro Region suggests that manufacturing growth in this area has been stimulated by general proximity and accessibility to Toronto. With the exception of Metropolitan Hamilton and Durham County on the east, the broader hinterland belt tended to share in the more rapid industrial growth of the Metropolitan Toronto Region, relative to other parts of Southern Ontario, between 1950 and 1961. Between 1962 and 1965, growth rates were more uniform across the southern part of the Province. Simcoe County in the north appears to have benefitted substantially from the spillover of manufacturing from Toronto, but industrial development in this region is still very limited in absolute terms.

Spatial Linkages

In terms of employment, only about 10 per cent of the manufacturing in towns of the Toronto hinterland is of the "ubiquitous" or non-basic type intended to serve the consumer market of the local area. When establishments of this type were excluded in the analysis of spatial linkages, Metropolitan Toronto was found to account, on the average, for 25-30 per cent of the market of plants located in towns of the study area. Toronto's role as a source of materials was of a somewhat lesser magnitude. Comparison of these findings with a previous study of manufacturing in the Metropolitan Toronto suburbs by Kerr and Spelt suggests that firms which have selected a location outside the metropolitan centre are much less dependent on Toronto as a market than those which have chosen a site within the suburban zone. In part, the difference can be traced to the small plants which have gravitated in large numbers to the metropolitan centre and which are very strongly tied to the local Toronto market. However, there appears to be a significant difference in market orientation between plants in the suburbs and those of outside centres for the larger firms as well. The extent to which differences in the market pattern should be viewed as an initial location factor and the extent to which they are a consequence of the location decision is difficult to evaluate. Both factors may play a role in the process. In other words, strength of the anticipated link with Toronto may influence the initial choice of a location between the suburbs and a peripheral town. At the same time, once a plant has located in an outlying centre, its ability to expand sales in the Toronto market may be affected by problems of communication, if not more directly by transportation costs.

Manufacturing establishments in the northern sector of the study area, represented by Barrie and Orillia, showed a stronger link with Toronto than did those of the Kitchener-Guelph area to the west. However, within the peripheral zone as a whole, no relationship could be discerned between distance from Toronto and relative orientation to the Metro market. There was no evidence that the contrast in market orientation between plants in the Toronto suburbs and those of the periphery was accompanied by a regular outward gradation once the political boundary of Metropolitan Toronto had been passed. It is possible that spatial linkages decrease away from Toronto in steps or in a series of broad, relatively homogeneous, concentric zones and that the area defined as the periphery in this study represents one such zone. To test such an hypothesis would require information on the marketing patterns of manufacturing establishments throughout Southern Ontario as a whole. More detailed information on the marketing patterns of Toronto-based firms would also be desirable.

Interaction, in the form of inter-plant market and material linkages, between manufacturing firms in centres ranging up to the size of Guelph (i.e. in centres where the total employment in manufacturing is less than 10,000) was found to be minimal. Only in Kitchener did the plants interviewed dispose of more than one per cent of their products locally. Inter-plant linkages are generally considered to be one of the more important agglomeration economies contributing to industrial symbiosis. It would seem that any centre designated as a growth pole must attain a very substantial size threshold before external economies of this type will help to sustain its growth.

In the plant interviews, answers to questions relating to transportation costs and communication problems confirmed the inferences which could be drawn from the analysis of spatial linkages and shed further light on certain problems associated with a location in the peripheral zone. Almost half of the firms in outlying centres believed that their assembly costs for materials would be lower if they were located in Metropolitan Toronto and nearly 60 per cent indicated that their distribution costs for products would be reduced. However, attempts to define the magnitude of the cost differential met with little success. Two-fifths of the firms found it necessary to maintain a sales office in Toronto and the proportion rose to over one-half of the total for plants with more than 100 employees. In the analysis of spatial linkages it was assumed that the transport cost differential between a location in an outlying centre and one in Metropolitan Toronto would be largely a function of the proportion of a firm's sales directed to the Toronto market and the share of its materials obtained therefrom. In the plant interviews, it was found that an additional factor would have to be considered in a complete appraisal of the transport cost differential associated with a location in the peripheral zone, i.e. many shipments destined for markets outside the province, including markets in Western Canada, were routed via Toronto.

In addition to transportation costs, other problems of communication were also found to be of some significance to firms located in the peripheral zone. Included in this category were the cost of long distance telephoning, time lags in the delivery of products and supplies, less personal contact with customers than would apply in a metropolitan location, and difficulties related to the servicing and repair of plant equipment. Speed of delivery appeared to be related as much to the limited number of trucking firms serving each centre, and the associated quality of service, as to the physical distance separating the towns from Toronto. Although a large proportion of

the firms interviewed made frequent use of the Toronto International Airport, virtually none considered that their distance from the airport was a significant handicap.

Personal amenities, including access to a broad range of entertainment, shopping and educational facilities, are often cited as one factor retarding the outward spread of manufacturing from a metropolitan centre to smaller towns of the hinterland. Considerations of this sort may influence the locational behaviour of the owner of a small plant, while a larger firm must consider problems of recruiting and retaining skilled personnel and managerial staff. In this study, personal locational preferences of manufacturing executives were probed, but only for those who were already living and working in the peripheral zone. Although very few indicated that they or their wives would prefer to live in Toronto, more than half stated that they would find a location further removed from Toronto significantly less desirable for personal reasons. The average frequency of non-business trips to Toronto ranged from almost once a week to once a month depending on the distance of the town from Toronto and the range of entertainment and other facilities available locally. The average frequency was lowest for Kitchener, the largest and second most distant centre. In order to evaluate fully the extent to which non-economic factors of this type have limited the growth of manufacturing in outlying centres, the motives of firms which have chosen to remain within Metropolitan Toronto would have to be analysed. Time and resources did not allow for an interview programme in the Toronto suburbs in the planning of this project.

Site Factors: Land Costs and Taxes

The high cost of land in Metropolitan Toronto has been a major factor in the decision of many firms to select a location in an outlying centre. For a five-acre site the difference in the price of land between the Toronto suburbs and a peripheral town will often exceed \$100,000. Differences in municipal taxes, particularly those applied to industrial buildings, are more difficult to measure and further research needs to be directed to this problem. Based on the analysis in Chapter IV, however, it would appear that the tax differential between most peripheral centres and Metropolitan Toronto is as substantial as the land cost differential when the latter is expressed as an annual cost.

For several reasons taxes have not proven to be as important a locational determinant as the cost of land. Although taxes on buildings account for the major share of the municipal tax burden, the task of accurately evaluating the true differential between municipalities is so complex that many firms may consider only the savings associated with the tax that is imposed on the land. With taxes, moreover, there is little guarantee that differentials at the time the location decision is made will continue indefinitely into the future. Most important, perhaps, is the fact that for many firms it is the initial capital outlay, rather than the cost of land converted to an annual operating cost, that is of primary concern. Strain on the supply of capital is a common problem for companies starting out in business or expanding at a new location. Interest rates on borrowed capital are usually very high. For this reason many firms which locate in Metropolitan Toronto or its immediate environs prefer to lease rather than to buy a site. The alternative is to seek out lower cost land at some distance from the city.

To reduce borrowing or initial capital outlays manufacturing firms may also prefer to rent a building. This would seem to be particularly important in the case of small companies who may be uncertain as to their future. It is only in a large centre such as Metropolitan Toronto or Kitchener that the demand for rental accommodation is sufficient to encourage private capital to undertake the development of industrial malls for small establishments or to construct larger buildings which could be rented or purchased by a firm desiring immediate occupancy.

Policy Implications

If decentralization is accepted as a desirable planning objective for the Metropolitan Toronto Region, the findings of this study suggest a number of factors which should be considered in the formulation of measures to achieve this goal.

First, it must be emphasized that manufacturing is not the only type of activity that has contributed to the concentration of population in Metropolitan Toronto and its immediate environs. In recent years other forms of urban employment appear to have been subject to much stronger centralization pressures than has manufacturing. Any attempt to curb the growth of population in the metropolitan area must take this fact into account. Without minimizing the difficulties, it is probably fair to suggest that industrial concerns would be the easiest type of enterprise to divert away from the metropolitan centre and that measures to promote decentralization would prove most effective in this sphere. To reverse the process of population concentration, however, would require much more than a minor change in industrial location trends. Little consolation can be taken in the levelling off of the concentration process with regards to manufacturing during the 1962-65 period. Intervention on a large scale would be required to curb in any significant way the absolute growth of industry and, even more so, of population in the metropolitan area. Since it is the very small establishments and plants of foreign origin which have shown the greatest propensity to concentrate in Metropolitan Toronto, particular attention might be given to firms in these categories in planning measures to promote decentralization.

There is reason to believe that the success of any scheme designed to attract new industry away from the Toronto area would be strongly conditioned by the number of towns designated as growth centres. The fewer the number of growth poles, the greater might be their cumulative attraction for both economic and psychological reasons. Indeed, consideration might be given to focusing attention on a single growth pole, at least for a limited number of years. Although a plan of this sort might be considered politically undesirable, since the designated centre would draw industry away from other peripheral towns as well as from Metropolitan Toronto, it would probably prove to be the most effective solution in the long run. Promotional literature aimed at foreign firms could then be given a very specific focus. With a single dynamic growth centre the real or imagined risk which firms might associate with a peripheral location should diminish. For example, if a company were forced to close down operations there would be a reasonable chance of selling or renting its plant and other property to another manufacturing concern. The larger the growth pole and the more dynamic its expansion, the sooner it would reach the threshold at which inter-plant market and material linkages begin to emerge as an agglomeration economy and help to sustain

growth. The same reasoning applies to all types of external economies, including the quality and variety of transportation services, although the size threshold for the realization of individual types of agglomeration economies could be expected to vary.

Since low cost land is one of the chief attributes which attracts firms to outlying centres, prices would have to be maintained at a low level in any town selected as a growth pole. Eventually firms would be drawn to the area by both the low cost of land and the agglomeration economies of a large industrial complex. Responsibility for such a project would be beyond the means of the individual municipality. A provincial development agency would have to purchase and develop large tracts of land suitable for industry to ensure that sites would be available for purchase or lease at minimal cost over an extended period. The scheme would be self-defeating if speculation and inflation were allowed to erode away the differential in land costs between the growth centre and Metropolitan Toronto. The magnitude of the tax differential relative to Metropolitan Toronto might also be stressed in promotional literature dealing with the designated growth centre, with particular attention given to the tax burden on industrial buildings. However, to define accurately the size of the differential would require additional research. Whether it would be possible to maintain taxes at a lower level in the growth centre poses an even more serious problem.

The Provincial Government would also have to assume responsibility, at least initially, for the provision of industrial malls and for the construction of larger plants that could be rented or sold to firms requiring immediate occupancy. Municipalities do not have the legal authorization to expend public funds for this purpose and private developers would be unlikely to risk capital in such a venture until the demand was assured. If decentralization measures were focused on a single growth centre, the risk would of course be minimized and a greater variety of buildings could be provided to meet the needs of individual firms.

Since many centres within the Toronto hinterland might wish to assume the function of a growth pole, and since the choice of one would have repercussions on the potential of the others to attract industry, the selection of a single centre would be fraught with political difficulties. In large measure the choice would have to be an arbitrary one, for it would be difficult to demonstrate that any existing town had attributes that could be matched by no other. It would probably be advantageous to start with a town where industrial agglomeration had already begun and where an initial labour pool was available, provided that land could be assembled at reasonable cost. In the outward spread of manufacturing, the historic lines of resistance have been to the east and it could be argued that a growth pole would more likely prove successful if it were centred on a town such as Barrie or Guelph to the north or west. On the other hand, proximity to Lake Ontario does offer certain advantages and it is possible that a node east of Oshawa could prove successful if an imaginative and intensive promotion scheme were able to overcome initial resistance. In many ways Barrie, in the northern part of the peripheral zone, seems to stand out as a logical choice. It is close enough to Toronto to have attracted industries that have a substantial orientation to the metropolitan area in their market and material linkages. At the same time, it is sufficiently far removed that it could not be engulfed by the outward growth of Toronto. Proximity to Lake Simcoe as a source of water also stands

in its favour. The development of a major centre north of Toronto might in time enhance the growth potential of areas still further to the north such as Orillia and the towns of the Georgian Bay shoreline. Barrie offers additional amenities through its proximity to vacation areas, but the long-term effect of accelerated urbanization in the direct path of north-south traffic flows in summer would have to be evaluated. Moreover, it is doubtful that major blocks of land could be purchased as cheaply in the environs of Barrie as in some other areas.

A number of alternative schemes have been proposed in the Metropolitan Toronto and Region Transportation Study to deal with the projected growth of population in the Metropolitan Toronto area. Some are designed to siphon off urban growth and to direct it into centres in the outlying parts of the hinterland. Others would not seek to limit conurbation in Toronto and its immediate environs, but would attempt to channel it into prescribed areas and to develop a transportation system that could handle the anticipated growth in population and associated traffic flows. The nature of this study is such that it cannot pass judgement on the relative merits of the two types of proposals. To do so would require a complex analysis of the costs, both direct and indirect, of increased conurbation in the metropolitan area. The policy implications discussed above are of primary relevance should it be decided to foster growth in one or more centres located at some distance from Toronto or if the final plan involves a dual approach to the problem including growth centres in the hinterland and directed expansion contiguous to the existing metropolis.



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